DOCUMENT RESUME

ED 227 634 EC 151 090

AUTHOR Corrado, Thomas J.; Colfer Mary Ellen
TITLE Beyond Access: Meeting the Instructional Needs of Handicapped Students in Postsecondary Occupational Education. Disabled Student Project.
INSTITUTION State Univ. of New York, Albany. Two Year Coll. Student Development Center.
PUB DATE Sep 81
NOTE 105p.; Paper presented at the Annual Convention of the American Educational Research Association (New York, NY, March 19-23, 1982).
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS *Accessibility (for Disabled); Ancillary School Services; Audiovisual Aids; College Students; *Disabilities; Helping Relationship; Mobility Aids; *Multiple Disabilities; *Physical Disabilities; *Sensory Aids; Student Needs; Two Year Colleges; *Vocational Education

ABSTRACT

The use and value of 36 special accommodations for 171 disabled students enrolled in occupational education programs at 19 New York State two-year colleges were studied. Students were surveyed regarding the use/importance of various services/equipment using the Instructional Accommodations Inventory. The predominant type of disabled student was the mobility disabled (40%), followed by the multiply disabled (19%), and the hearing disabled (12%). The remaining 29% had visual, learning, emotional, and speech disabilities. Findings include the following: 1) the typical disabled student in the sample was over 21 years old, not employed, and enrolled full-time in day classes; 2) both males and females preferred business and office education; 3) time limits on exams was the most frequently reported instructional problem; 4) better notetaking skills was seen as a priority need; 5) most disabled students had never used many of the accommodations; 6) the accommodations with the highest percentages of use included extra personal help, tutors, and tape recorders; and 7) the accommodations given the highest ratings on importance were those with an interpersonal, or human contact, component. Appended are 1) a list of federal definitions of the handicapped, 2) the Instructional Accommodations Inventory, 3) definitions of instructional accommodations, and 4) a summary of student comments. (SEW)

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# DISABLED STUDENT PROJECT

## BEYOND ACCESS:
## MEETING THE INSTRUCTIONAL NEEDS OF HANDICAPPED STUDENTS IN POSTSECONDARY OCCUPATIONAL EDUCATION

TWO YEAR COLLEGE DEVELOPMENT CENTER

STATE UNIVERSITY OF NEW YORK AT ALBANY

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# BEYOND ACCESS:

# MEETING THE INSTRUCTIONAL NEEDS OF HANDICAPPED STUDENTS

# IN POSTSECONDARY OCCUPATIONAL EDUCATION

VEA 53-81-0430

Thomas Corrado, Project Director
Mary Ellen Colfer, Project Assistant
Charlotte McAllister, Project Secretary

Two-Year College Development Center
Gene M. Winter, Director

State University of New York at Albany
Albany, New York 12222

Funding for this project was provided under P.L. 94-482
Title II, Vocational Education Subpart 3, Education Amendments of 1976
Administered by the New York State Education Department

September 1981

Beyond Access: Meeting the Instructional Needs of Handicapped Students in Postsecondary Occupational Education

Abstract

A total of 171 disabled students enrolled in occupational education programs at 19 two-year colleges completed a questionnaire designed to determine their experience with and evaluation of 36 special accommodations. Data were analyzed for eight separate types of disabled students (emotional, hearing, learning, mobility, speech, visual, other, and multiple disabled) as well as for the overall sample. Findings are presented on student characteristics, major program areas, special instructional problems, and frequency of use, relative importance, and perceived availability of accommodations. Implications are offered to assist colleges in their efforts to meet the needs of disabled students in postsecondary education.

## Advisory Committee

Phyllis Bader-Borel, Associate for Student Development
SUNY Central Administration
Albany, New York

Herbert Bender, Coordinator of Special Services
Dutchess Community College
Poughkeepsie, New York

Lawrence Gray, Associate
Bureau of Grants Administration
New York State Education Department
Albany, New York

Jane Herbert, Coordinator
C.U.N.Y. Administration
New York, New York

Bernard Horowitz, Director of Counseling
SUNY Agricultural & Technical College
Cobleskill, New York

Dr. Edward Milis, Director of Research & Planning
Monroe Community College
Rochester, New York

Anita Tritell, Associate Dean for Student Development
SUNY Agricultural & Technical College
Farmingdale, New York

Arnold Vasbinder, State Coordinator of Placement Services
Office of Vocational Rehabilitation
New York State Education Department
Albany, New York

## Cooperating Sites and Contact Persons

### SUNY

#### Agricultural and Technical Colleges

| | |
|---|---|
| Alfred | Dr. J. D. Barton, Jr., 504 Coordinator |
| Canton | David Keller, Associate Dean of Student Services |
| Cobleskill | Wayne Morris, Counselor |
| Farmingdale | Anita Tritell, Associate Dean |
| Morrisville | Thomas Monaghan, Counselor |

#### Community Colleges

| | |
|---|---|
| Broome | Mary E. Schum, Affirmative Action Officer |
| Dutchess | Herbert Bender, Coordinator Special Services |
| Erie | Karen Noonan, Planning and Development |
| Finger Lakes | Dr. Frederica Dunn, Dean of Students |
| Herkimer County | William Alberta, Counselor |
| Hudson Valley | Thomas DePalma, Coordinator Disabled Students |
| Mohawk Valley | Maryanne DiMeo-Brindisi, Instructor, Psychology |
| Monroe | Dr. Edward Mills, Director of Research and Planning |
| Nassau | Dr. Victor Margolis, Coordinator Disabled Students<br>Doris B. McFarlin, Administrative Assistant |
| Orange County | George Shepard, Dean of Students |
| Schenectady County | Thad Raushi, Counselor |
| Tompkins-Cortland | James Hull, Director of Counseling |

### CUNY

#### Community Colleges

| | |
|---|---|
| LaGuardia | Robert Durfey, Coordinator Disabled Students |
| Queensborough | Dr. Elliot Rossman, Office for Disabled Students<br>Audrey Ashendorf, Assistant Director Homebound Program |

## Acknowledgements

We wish to express our thanks to the many individuals who contributed to the success of the Disabled Student Project. We are very grateful to the members of the Advisory Committee whose advice proved invaluable throughout the many stages of the project. We also wish to acknowledge the contact persons at each of the 19 cooperating colleges for their help in coordinating the collection of data at each site.

We are most appreciative of the time and assistance given by individuals in the public and private agencies consulted during the project, particularly the New York State Library for the Blind and Visually Handicapped, and the Division of Occupational Education Planning and Information, Research, and Evaluation, New York State Education Department. Special recognition goes to Nancy Belowich, Coordinator of Disabled Student Services at the State University of New York at Albany, and to Robert LaCasse, Associate in Trade and Technical Education, Office of Occupational and Continuing Education, New York State Education Department, for their generosity in sharing expertise and resources.

We are indebted to Dr. Gene Winter, Director of the Two-Year College Development Center, for his unflinching support, encouragement, and reassurance throughout the project. Special thanks also go to Ruth O'Connor and William Salifu, Graduate Assistants, who assisted in collecting and coding the data.

And finally, we wish to acknowledge the disabled students at the cooperating colleges, for their time, effort, and perceptive comments. It is hoped that the information provided in this report will assist colleges in their efforts to meet the needs of disabled students.

Thomas Corrado

Mary Ellen Colfer

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## Introduction

The 1970s saw the enactment of a comprehensive legislative package for the disabled. Such laws as the Education for All Handicapped Children Act of 1975 (P.L. 94-142), the Vocational Education Amendments of 1976 (P.L. 94-482), and Section 504 of the Rehabilitation Act of 1973 (P.L. 93-112) extended the principle of egalitarianism to disabled students by mandating the provision of a "free appropriate education" in the "least restrictive environment."

These landmark pieces of legislation guaranteed disabled students the same right to education as enjoyed by their nondisabled peers, but failed to specify how such "program access" could best be implemented. This led many postsecondary institutions to regard compliance solely in architectural terms--the most obvious and least complicated of all barriers. Although essential to full compliance, such efforts soon proved short-sighted. As disabled students entered the classrooms, laboratories, and libraries of the newly-accessible institutions, it became clear that program access demanded not only ramps, elevators, and modified restrooms, but special support services, instructional adjustments, and attitude change as well. In effect, the ultimate test of the validity of the legislative mandates had come to rest upon the faculty and staff of the colleges.

Program access for disabled students demands accommodation at both institutional and instructional levels. It goes beyond structural modification to encompass the entire teaching-learning enterprise. As stated in the Guidelines for Eliminating Discriminations issued by the Office of Civil Rights (1978):

> Recipients (of federal financial assistance) may not deny handicapped students access to vocational education programs or courses because of architectural or equipment barriers, or because of the need for related aids and services or auxiliary aids. If necessary, recipients must: (1) modify instructional equipment, (2) modify or adapt the manner in which courses are offered, (3) house the program in facilities that are readily accessible to mobility impaired students, (4) provide auxiliary aids that effectively make lectures and necessary materials available to postsecondary handicapped students....

The Disabled Student Project was initiated by the Two-Year College Development Center in order to examine the extent and quality of selected accommodations made for and used by disabled students in postsecondary occupational education. Specifically, the project was designed to:

- Obtain demographic data from disabled students enrolled in occupational education programs in selected New York State two-year colleges;
- Identify the instructional problems encountered by those students; and
- Determine the students' experience with and evaluation of accommodations.

## Method

### Formation of Advisory Committee

At the beginning of the project, an Advisory Committee was established representing various postsecondary groups concerned with occupational education for the disabled. The committee was charged with providing formative and summative review of the project's procedures, activities, and outcomes.

### Identification of Disabilities

A review of the educational and legislative literature on disabled students yielded several definitions and categories. For purposes of this project, a "disabled student" was defined as any student who cannot succeed in a regular occupational education program without special accommodation. Included in this definition are students with mobility, visual, hearing, speech, emotional, learning, other, and multiple disabilities (see Appendix A for definitions). These categories of disability are based upon those listed in the Education for All Handicapped Children Act of 1975 (P.L. 94-142).

### Development of Survey Instrument

The Instructional Accommodations Inventory (Appendix B) was designed to survey disabled students enrolled in postsecondary occupational education programs in order to determine their experience with and evaluation of selected accommodations. An "accommodation" is any modification in method, technique, aid, device, service, or practice that enables a disabled person to participate in an academic setting.

The Instructional Accommodations Inventory was developed with input from the Advisory Committee, with recommendations from colleagues working with special needs students, and with information from an investigation of accommodations currently available to disabled students through state and local agencies.

The Inventory consists of three sections. The first section, "Background Information," asks students to provide basic demographic data, to describe their disabilities, and to indicate special instructional problems. The second section, "Accommodations," comprises 36 frames each consisting of a series of items related to student use of 30 Instructional and six Instructor-Related Accommodations (see Appendix C for definitions). The difference between these two types of accommodations is based upon the providing source. Instructional Accommodations are provided by the students themselves, the college, or an outside agency, and may be used by disabled students in any course as needed. Examples include Tape Recorders, Interpreters, Notetakers. Instructor-Related Accommodations, by comparison, are provided by individual instructors, and are available to disabled students only in courses taught by instructors who have chosen to make such accommodations. Examples include Alternate Assignments, Different Exam Formats, Study Guides/Notes. The final section of the Inventory, "Additional Comments," presents students with two open-ended questions concerning additional accommodations and support services.

A draft of the questionnaire was reviewed by the Advisory Committee and other specialists in vocational education and disabled student services. The revised questionnaire was piloted on a group of disabled students at the State University of New York at Albany.

Selection of Sample

In the fall of 1980, representatives from 54 New York State two-year colleges were invited to attend one of three regional meetings to learn about the Disabled Student Project. Of the 32 colleges represented at the meetings, 19 agreed to survey a sample of their disabled students enrolled in occupational education programs. Copies of the Instructional Accommodations Inventory were sent to the contact persons at the cooperating colleges with

the request that they assist in the distribution and administration of the questionnaires.

Usable questionnaires were received from 171 disabled students. Of these, 126 had been completed by occupational education majors; the remaining 45 had been completed by students with undeclared majors who were enrolled in occupational education courses.

According to figures obtained from the Division of Occupational Education Planning and Information, Research, and Evaluation, New York State Education Department, a total of 1270 disabled students were enrolled in occupational education programs in New York State two-year colleges for the 1980-81 academic year. The project's sample (N = 171) represents 14% of this identified population.

Analysis of Data

Data were analyzed for the eight separate types of disabled students as well as for the overall sample. Frequencies, averages, percentages, and correlations were calculated by computer using the Statistical Package for the Social Sciences (SPSS).

## Findings

### Student Characteristics

Table 1 presents demographic information for the 86 males and 84 females in the sample. Of the six demographic characteristics displayed, only "age" significantly differentiated the sexes: more males (50%) than females (35%) were between 21 and 34; more females (30%) than males (15%) were over 35.

The majority of students were over 21 years of age (65%), unemployed (75%), and receiving assistance from various agencies (70%), including the Office of Vocational Rehabilitation (69%), Social Security (40%), the Commission for the Visually Handicapped (6%), the Veterans Administration (3%), and other sources (12%), such as Worker's Compensation. Academically, most respondents were full-time students (77%), beyond their first semester of enrollment (84%), attending classes during the day (70%).

### Types of Disabled Students

The student responses to the questionnaire item on "Nature of Disability" were regrouped to reflect individual respondents and are reported on Table 2 as types of disabled students rather than as types of disabilities. Each student in the sample is represented once. This regrouping was achieved by creating the category "Multiple" for students with more than one disability. The inclusion of this category made it possible to analyze student use of accommodations separately for each disability type. Without this regrouping, the analyses would have been contaminated by the responses from students with more than one disability. For example, if a student with hearing and vision impairments selected the accommodation "Tutors," it would not have been possible, given the design of the survey instrument, to determine which disability (hearing or vision) had prompted the student's use of this accommodation. The regrouping of responses into types of disabled students minimized such

Table 1

Student Characteristics

| Variable | Male (N=86) f (%) | (%) | Female (N=84) f (%) | (%) | Combined[a] (N=171) f (%) | (%) |
|---|---|---|---|---|---|---|
| Age | | | | | | |
| 20 or Younger | 30 (35) | | 29 (35) | | 59 (35) | |
| 21-24 | 21 (24) | | 16 (19) | | 37 (22) | |
| 25-34 | 22 (26) | | 13 (16) | | 36 (21) | |
| 35 or Older | 13 (15) | | 25 (30) | | 38 (22) | |
| Employment Status | | | | | | |
| Not Employed | 65 (76) | | 62 (74) | | 128 (75) | |
| Employed Part-Time | 16 (19) | | 17 (20) | | 33 (19) | |
| Employed Full-Time | 5 ( 6) | | 2 ( 2) | | 7 ( 4) | |
| Agency Assistance | | | | | | |
| No | 25 (29) | | 24 (29) | | 49 (29) | |
| Yes | 59 (69) | | 60 (71) | | 120 (70) | |
| Office of Vocational Rehabilitation | 43 | (73) | 39 | (65) | 83 | (69) |
| Commission for the Visually Handicapped | 3 | ( 5) | 4 | ( 8) | 7 | ( 6) |
| Veterans Administration | 3 | ( 5) | 1 | ( 2) | 4 | ( 3) |
| Social Security | 26 | (44) | 21 | (35) | 48 | (40) |
| Other | 6 | (10) | 8 | (13) | 14 | (12) |
| Full-Time Student Status | | | | | | |
| No | 19 (22) | | 19 (23) | | 39 (23) | |
| Yes | 67 (78) | | 65 (77) | | 132 (77) | |
| Semester of Enrollment | | | | | | |
| First | 9 (11) | | 14 (17) | | 24 (14) | |
| Second | 31 (36) | | 28 (33) | | 59 (35) | |
| Third or Beyond | 43 (50) | | 41 (49) | | 84 (49) | |
| Class Schedule | | | | | | |
| Days Only | 57 (66) | | 63 (75) | | 120 (70) | |
| Evenings Only | 8 ( 9) | | 3 ( 4) | | 12 ( 7) | |
| Both Days and Evenings | 19 (22) | | 18 (21) | | 37 (22) | |

[a]The combined total includes one additional student who did not indicate sex and is not represented in the male or female totals.

Table 2

Types of Disabled Students

| Type | Male (N=86) | | Female (N=84) | | Combined (N=171) | |
|---|---|---|---|---|---|---|
| | f (%) | (%) | f (%) | (%) | f (%) | (%) |
| Mobility (M) | 40 (47) | | 28 (33) | | 68 (40) | |
| Visual (V) | 9 (11) | | 5 ( 6) | | 14 ( 8) | |
| Hearing (H) | 8 ( 9) | | 13 (16) | | 21 (12) | |
| Speech (S) | 3 ( 4) | | 1 ( 1) | | 4 ( 2) | |
| Emotional (E) | 4 ( 5) | | 3 ( 4) | | 8 ( 5) | |
| Learning (L) | 7 ( 8) | | 3 ( 4) | | 10 ( 6) | |
| Other (O) | 4 ( 5) | | 9 (11) | | 13 ( 8) | |
| Multiple[a] | 11 (13) | | 22 (26) | | 33 (19) | |
| [a]The category "Multiple" refers to students with more than one disability. It includes the following combinations of disabilities (percentages based on number of students in "Multiple" category): | | | | | | |
| M + V | | | 5 | (23) | 5 | (15) |
| M + H | | | 1 | ( 5) | 1 | ( 3) |
| M + S | 1 | ( 9) | 2 | ( 9) | 3 | ( 9) |
| M + E | 1 | ( 9) | 2 | ( 9) | 3 | ( 9) |
| M + L | | | 1 | ( 5) | 1 | ( 3) |
| M + O | | | 2 | ( 9) | 2 | ( 6) |
| V + L | | | 2 | ( 9) | 2 | ( 6) |
| V + O | 1 | ( 9) | 2 | ( 9) | 3 | ( 9) |
| H + S | 1 | ( 9) | 2 | ( 9) | 3 | ( 9) |
| H + L | 1 | ( 9) | | | 1 | ( 3) |
| E + O | | | 1 | ( 5) | 1 | ( 3) |
| L + O | 1 | ( 9) | | | 1 | ( 3) |
| M + V + H | | | 1 | ( 5) | 1 | ( 3) |
| M + V + L | 3 | (27) | | | 3 | ( 9) |
| M + H + E + O | 1 | ( 9) | | | 1 | ( 3) |
| V + S + E + O | | | 1 | ( 5) | 1 | ( 3) |
| M + H + S + E + L | 1 | ( 9) | | | 1 | ( 3) |

contamination, permitted analyses of accommodations for each separate disability type, and improved the precision of the investigation.

As indicated, the predominant type of disabled student in the sample was the mobility disabled (40%). This was followed by the multiple disabled (19%), and the hearing disabled (12%). These three types of disabled students represented 71% of the sample. The remaining five types accounted for 29% of the sample: visual (8%), other (8%), learning (6%), emotional (5%), and speech (2%).

An inspection of the lower portion of Table 2 reveals that 21 of the 33 multiple disabled students had some form of mobility impairment. These 21 students, combined with the 68 mobility disabled students listed in the upper portion of the table, raises the total number of students with mobility impairments to 79, over half (52%) of the sample.

The finding that the mobility disabled student was the most common type in the total sample may be an artifact of the method for collecting data on disabled students in postsecondary education. Students with mobility disabilities are more easily identified, more in need of physical access accommodations (e.g., special parking permits), and, as a result, more readily reported than students with other "less obvious" disabilities.

Sex differences were noted in seven of the eight types of disabled students. More males than females were mobility, visual, speech, and learning disabled; more females than males were hearing, other, and multiple disabled.

Major Program Area

Table 3 provides the frequencies and percentages of students by type of disability, sex, and occupational education program area. The eight program areas listed include the seven basic occupational education programs plus the category "other" for students with undeclared majors who were enrolled

Table 3

Number of Disabled Students By Type of Disability, Program Area, and Sex

| | | Type of Disability[a] | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mobility | | Visual | | Hearing | | Speech | | Emotional | | Learning | | Other | | Multiple[b] | | Combined | |
| | M[c] | N= 39 | | 9 | | 8 | | 3 | | 3 | | 7 | | 4 | | 11 | | 84 | |
| | F | N= 25 | | 5 | | 13 | | 1 | | 3 | | 3 | | 9 | | 20 | | 79 | |
| Program Area | T | N= 64 | | 14 | | 21 | | 4 | | 6 | | 10 | | 13 | | 31 | | 163 | |
| | | f | (%) | f | (%) | f | (%) | f | (%) | f | (%) | f | (%) | f | (%) | f | (%) | f | (%) |
| Agricultural | M | 3 | ( 8) | 2 | (22) | 2 | (25) | | | | | 2 | (29) | | | | | 9 | (11) |
| | F | 1 | ( 4) | | | 3 | (23) | | | | | | | | | | | 4 | ( 5) |
| | T | 4 | ( 6) | 2 | (14) | 5 | (24) | | | | | 2 | (20) | | | | | 13 | ( 8) |
| Distributive | M | 2 | ( 5) | | | | | 1 | (33) | 1 | (33) | | | | | | | 4 | ( 5) |
| | F | | | | | | | 1 | (100) | | | | | | | | | 1 | ( 1) |
| | T | 2 | ( 3) | | | | | 2 | (50) | 1 | (17) | | | | | | | 5 | ( 3) |
| Health | M | 2 | ( 5) | 1 | (11) | | | | | 1 | (33) | 1 | (14) | | | | | 5 | ( 6) |
| | F | | | 1 | (20) | 1 | ( 8) | | | | | | | 2 | (22) | 3 | (15) | 7 | ( 9) |
| | T | 2 | ( 3) | 2 | (14) | 1 | ( 5) | | | 1 | (17) | 1 | (10) | 2 | (15) | 3 | (10) | 12 | ( 7) |
| Home Economics | M | 1 | ( 3) | | | | | | | | | | | | | | | 1 | ( 1) |
| | F | 3 | (12) | 1 | (20) | 1 | ( 8) | | | | | | | 2 | (22) | 1 | ( 5) | 8 | (10) |
| | T | 4 | ( 6) | 1 | ( 7) | 1 | ( 5) | | | | | | | 2 | (15) | 1 | ( 3) | 9 | ( 6) |
| Business | M | 14 | (36) | 2 | (22) | 2 | (25) | | | | | 3 | (43) | | | 5 | (46) | 26 | (31) |
| | F | 11 | (44) | | | 5 | (39) | | | 2 | (67) | 1 | (33) | 2 | (22) | 3 | (15) | 24 | (30) |
| | T | 25 | (38) | 2 | (14) | 7 | (33) | | | 2 | (33) | 4 | (40) | 2 | (15) | 8 | (26) | 50 | (31) |
| Technical | M | 2 | ( 5) | 1 | (11) | 1 | (13) | | | | | 1 | (14) | 2 | (50) | 2 | (18) | 9 | (11) |
| | F | | | | | 1 | ( 8) | | | | | | | | | | | 1 | ( 1) |
| | T | 2 | ( 3) | 1 | ( 7) | 2 | (10) | | | | | 1 | (10) | 2 | (15) | 2 | ( 6) | 10 | ( 6) |
| Trade | M | 5 | (13) | | | 1 | (13) | 1 | (33) | | | | | 1 | (25) | 2 | (18) | 10 | (12) |
| | F | 6 | (24) | 1 | (20) | | | | | | | 2 | (67) | 1 | (11) | 7 | (35) | 17 | (22) |
| | T | 11 | (17) | 1 | ( 7) | 1 | ( 5) | 1 | (25) | | | 2 | (20) | 2 | (15) | 9 | (29) | 27 | (17) |
| Other | M | 10 | (26) | 3 | (33) | 2 | (25) | 1 | (33) | 1 | (33) | | | 1 | (25) | 2 | (18) | 20 | (24) |
| | F | 4 | (16) | 2 | (40) | 2 | (15) | | | 1 | (33) | | | 2 | (22) | 6 | (30) | 17 | (22) |
| | T | 14 | (22) | 5 | (36) | 4 | (19) | 1 | (25) | 2 | (33) | | | 3 | (23) | 8 | (26) | 37 | (23) |

[a]Numbers reflect those students who listed their major program area.

[b]The category "Multiple" refers to students with more than one disability.

[c]M = Male, F = Female, T = Total.

in occupational education courses.

An examination of the percentages in the "Combined" column reveals the following ranking of program areas across all types of disabled students:

- Business and Office Education (31%)
- Other (23%)
- Trade, Industrial, and Service Education (17%)
- Agricultural Education (8%)
- Health Education (7%)
- Home Economics Education (6%)
- Technical Education (6%)
- Distributive Education (3%)

The program area with the largest percentage of students for each disability type is represented in the following listing:

- Mobility (Business and Office Education 38%)
- Visual (Other 36%)
- Hearing (Business and Office Education 33%)
- Speech (Distributive Education 50%)
- Emotional (Business and Office Education 33%)
- Learning (Business and Office Education 40%)
- Other (Other 23%)
- Multiple (Trade, Industrial, and Service Education 29%)

As indicated in the above listings, Business and Office Education, with 31% of the total sample as well as the largest percentage of students in four of the eight disability types, clearly emerged as the occupational education program most preferred by disabled students.

Finally, the data on Table 3 indicate a relationship between sex and program area. Significantly more males than females were majoring in the Agricultural, Distributive, and Technical Education Programs; significantly more females than males had selected the Home Economics and Trade Education Programs. The relatively equal representation of both sexes in the Health, Business, and Other Education Programs is consistent with recent enrollment trends for non-disabled students.

Special Instructional Problems

Table 4 presents the frequencies and percentages of male and female

Table 4

Special Problems by Disabled Student Type and Sex

| Special Problems | | Type of Disability | | | | | | | | | | | | | | | | Combined | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mobility | | Visual | | Hearing | | Speech | | Emotional | | Learning | | Other | | Multiple[a] | | | |
| | M[b] | N= 40 | | 9 | | 8 | | 3 | | 4 | | 7 | | 4 | | 11 | | 86 | |
| | F | N= 28 | | 5 | | 13 | | 1 | | 3 | | 3 | | 9 | | 22 | | 84 | |
| | T | N= 68 | | 14 | | 21 | | 4 | | 7 | | 10 | | 13 | | 33 | | 170 | |
| | | f | (%) | f | (%) | f | (%) | f | (%) | f | (%) | f | (%) | f | (%) | f | (%) | f | (%) |
| Lab/shopwork | M | 11 | (28) | 7 | (78) | 1 | (13) | | | 1 | (25) | | | | | 2 | (18) | 22 | (26) |
| | F | 6 | (21) | 3 | (60) | | | | | | | | | | | 3 | (14) | 12 | (14) |
| | T | 17 | (25) | 10 | (71) | 1 | ( 5) | | | 1 | (14) | | | | | 5 | (15) | 34 | (20) |
| Desk/table height | M | 12 | (30) | | | | | | | | | | | | | 1 | ( 9) | 13 | (15) |
| | F | 5 | (18) | | | | | | | | | | | | | | | 5 | ( 6) |
| | T | 17 | (25) | | | | | | | | | | | | | 1 | ( 3) | 18 | (11) |
| Discussion classes | M | 4 | (10) | 1 | (11) | 3 | (38) | 3 | (100) | | | | | 1 | (25) | 3 | (27) | 15 | (17) |
| | F | 2 | ( 7) | | | 6 | (46) | | | | | 1 | (33) | | | 4 | (18) | 13 | (15) |
| | T | 6 | ( 9) | 1 | ( 7) | 9 | (43) | 3 | (75) | | | 1 | (10) | 1 | ( 8) | 7 | (21) | 28 | (16) |
| Large lecture classes | M | 5 | (13) | | | 3 | (38) | 1 | (33) | | | 2 | (29) | 1 | (25) | 2 | (18) | 14 | (16) |
| | F | 1 | ( 4) | 1 | (20) | 5 | (38) | | | | | | | | | 5 | (23) | 12 | (14) |
| | T | 6 | ( 9) | 1 | ( 7) | 8 | (38) | 1 | (25) | | | 2 | (20) | 1 | ( 8) | 7 | (21) | 26 | (15) |
| Not enough time between classes | M | 6 | (15) | 1 | (11) | | | | | | | | | | | 3 | (27) | 10 | (12) |
| | F | 3 | (11) | 1 | (20) | 1 | ( 8) | 1 | (100) | | | | | 1 | (11) | 4 | (18) | 11 | (13) |
| | T | 9 | (13) | 2 | (14) | 1 | ( 5) | 1 | (25) | | | | | 1 | ( 8) | 7 | (21) | 21 | (12) |
| Time limits on exams | M | 10 | (25) | 4 | (44) | 1 | (13) | | | | | 5 | (71) | 1 | (25) | 5 | (45) | 26 | (30) |
| | F | 5 | (18) | 3 | (60) | 4 | (31) | 1 | (100) | | | 1 | (33) | 2 | (22) | 6 | (27) | 22 | (26) |
| | T | 15 | (22) | 7 | (50) | 5 | (24) | 1 | (25) | | | 6 | (60) | 3 | (23) | 11 | (23) | 48 | (28) |
| Instructors with full beards | M | | | | | | | | | | | | | | | | | | |
| | F | | | 1 | (20) | 4 | (31) | | | | | | | | | 1 | ( 5) | 6 | ( 7) |
| | T | | | 1 | ( 7) | 4 | (19) | | | | | | | | | 1 | ( 3) | 6 | ( 4) |
| Instructors who use chalkboard a lot | M | 2 | ( 5) | 7 | (78) | | | | | | | | | | | | | 9 | (11) |
| | F | 1 | ( 4) | 4 | (80) | | | | | | | | | 1 | (11) | 4 | (18) | 10 | (12) |
| | T | 3 | ( 4) | 11 | (79) | | | | | | | | | 1 | ( 8) | 4 | (12) | 19 | (11) |

[a]The category "Multiple" refers to students with more than one disability.

[b]M = Male, F = Female, T = Total.

disabled students for the eight special instructional problems listed on the questionnaire. The data in the "Combined" column reveal the following ranking of problems for all types of disabled students:

- Time limits on exams (28%)
- Lab/shopwork (20%)
- Discussion classes (16%)
- Large lecture classes (15%)
- Not enough time between classes (12%)
- Desk/table height (11%)
- Instructors who use chalkboard a lot (11%)
- Instructors with full beards (4%)

An examination of the number of disabled student types that selected a given problem provides a further indication of the extent of student difficulties. "Discussion classes," "large lecture classes," and "time limits on exams" were each selected by students from seven of the eight disability types. "Not enough time between classes" was cited by six types, "lab/shopwork" by five, "instructors who use chalkboard a lot" by four, "instructors with full beards" by three, and "desk/table height" by students in two of the eight types.

The expected relationship between type of problem and type of disabled student was confirmed by the finding that students within each disability type selected certain problems more frequently than others. These problems appear in the following listing:

- Mobility (Desk/table height 25%, Lab/shopwork 25%)
- Visual (Instructors who use chalkboard a lot 79%, lab/shopwork 71%, Time limits on exams 50%)
- Hearing (Discussion classes 43%, Large lecture classes 38%)
- Speech (Discussion classes 75%)
- Emotional (Lab/shopwork 14%)
- Learning (Time limits on exams 60%)
- Other (Time limits on exams 23%)
- Multiple (Time limits on exams 23%)

In addition to the selected instructional problems listed on the questionnaire, students were invited to indicate other areas of concern. With respect to academic problems, students expressed a need for the following:

- Better notetaking skills
- Instructors with better lecture and chalkboard techniques
- Modification of A-V materials (e.g., film scripts for hearing impaired)
- Opportunities to make up work missed due to illness
- Outlines of material covered in class
- Permission to tape record lectures

The "Student Comments" section of this report (Appendix D) provides a review of additional student concerns.

Accommodations

The use of an accommodation by a disabled student is a function of the nature and extent of the student's disability, the willingness of the student to use the accommodation, the availability of the accommodation, its applicability to the needs of the student, and its importance as perceived by the student. The items in the second section of the questionnaire were intended to assess these dimensions of student use of the 30 Instructional and six Instructor-Related Accommodations. The results of these analyses are summarized on Tables 5 through 8. In examining these tables, the following points should be noted:

- The 36 accommodations vary in degree of specialization.
- The more highly specialized accommodations are tailored to the needs of specific types of disabled students. Braille materials, for example, are invaluable to many visually impaired students, but of little or no value to others. The percentages of use of such disability-specific accommodations reflect in part the incidence in the sample of the disabilities associated with them. The relatively low percentages of use for some of these accommodations, then, may be due to the low representation in the sample of certain disability types.
- The less specialized accommodations are more broadly applicable across disability types. Tutors, tape recorders, and study guides, for example, can be used by most students regardless of disability. In general, the accommodations with broad applicability will have higher percentages of use than the more specialized accommodations. This is especially true of the six Instructor-Related accommodations, whose broad applicability is reflected in their relatively high percentages of use.

Reasons for Non-Use. Table 5 presents the reasons selected by students for not having used the 30 Instructional Accommodations. Since the six Instructor-

Table 5

Reasons for Not Using Accommodations[a]

| Accommodation | N[c] | Reason[b] Don't need this | Don't know what this is | Not sure if available | Other |
|---|---|---|---|---|---|
| Instructional | | % | % | % | % |
| Abacus | 150 | 38 | 56 | 4 | 1 |
| Bookholder | 148 | 65 | 42 | 2 | 1 |
| Braille Inform Materials | 159 | 90 | 7 | 1 | 1 |
| Braille Instruct Materials | 157 | 92 | 4 | 1 | 1 |
| Braille Slate and Stylus | 156 | 92 | 5 | | 2 |
| Braille Transcription | 158 | 91 | 6 | 1 | 1 |
| Captioned Films | 142 | 70 | 13 | 13 | 2 |
| Captioned Videotapes | 140 | 70 | 13 | 13 | 3 |
| Cassette Duplication | 138 | 71 | 22 | 4 | 1 |
| Elastic Line Guide | 152 | 72 | 34 | 1 | |
| Electric Page Turner | 150 | 81 | 6 | 2 | 3 |
| Finger Math | 157 | 66 | 30 | 6 | 1 |
| Hydraulic Lift | 141 | 84 | 10 | 8 | 2 |
| Interpreters | 139 | 93 | 3 | 2 | 1 |
| Lg Prt Inform Materials | 149 | 89 | 4 | 7 | 1 |
| Lg Prt Instruct Materials | 151 | 87 | 4 | 8 | 1 |
| Lg Prt Typewriter | 155 | 90 | 2 | 7 | 1 |
| Low Vision Reader | 149 | 80 | 16 | 2 | 2 |
| Magnifying Reader | 148 | 90 | 5 | 4 | 1 |
| Microcomputer | 152 | 52 | 32 | 13 | 1 |
| Notetakers | 126 | 71 | 19 | 9 | 1 |
| Optacon | 157 | 44 | 52 | 3 | 1 |
| Perkins Brailler | 154 | 91 | 5 | 2 | 2 |
| Raised Line Kit | 155 | 79 | 16 | 4 | 1 |
| Readers | 147 | 82 | 14 | 4 | |
| Talking Books | 140 | 88 | 6 | 6 | |
| Talking Calculator | 155 | 85 | 7 | 7 | 1 |
| Tape Recorder | 95 | 83 | 1 | 9 | 7 |
| Teletypewriter | 144 | 67 | 20 | 12 | 1 |
| Tutors | 97 | 76 | 3 | 7 | 10 |

[a] Totals may reflect missing data.

[b] Respondents were not asked to indicate reasons for not using the six Instructor-Related Accommodations.

[c] Number of students who responded "NO" for each accommodation.

Related Accommodations are sufficiently generic in nature to be applicable to virtually all types of disabled students, and since the provision of these accommodations reflects an individual instructor's decision rather than a college-wide policy, students were not required to indicate their reasons for non-use of these accommodations.

The data on Table 5 suggest that the majority of all 171 disabled students in the sample had never used many of the Instructional Accommodations, with the frequency of "no" responses ranging from 95 (Tape Recorder) to 159 (Braille Informational Materials). Disability-specific relationships to student use of accommodations, which tend to be washed out in these combined data, will be examined in the section of this report dealing with Table 7.

Of the four reasons listed on Table 5 for not having used an accommodation, "Don't need this" was generally selected most often, followed by "Don't know what this is," "Not sure if available," and "Other." The high percentage of students who selected "Don't need this" is consistent with the specialized nature of many of the disability-specific accommodations (e.g., Braille Informational Materials, 90%; Electric Page Turner, 81%; Magnifying Reader, 90%).

Two of the four reasons for non-use--"Don't know what this is" and "Not sure if available"--imply a lack of student awareness of accommodations. By combining the percentages in these columns for each accommodation, an index of this lack of awareness can be determined. The combined percentage in these columns was greater than 25% for the following 11 accommodations:

- Abacus (60%)
- Optacon (55%)
- Microcomputer (45%)
- Bookholder (44%)
- Finger Math (36%)
- Elastic Line Guide (35%)
- Teletypewriter (32%)
- Notetakers (28%)
- Captioned Films (26%)
- Captioned Videotapes (26%)
- Cassette Duplication Services (26%)

A student's lack of awareness of an accommodation as indexed here may reflect either a lack of understanding of the questionnaire's terminology or a lack of knowledge of either the accommodation itself or its availability on campus. Obviously, a student's confusion over terminology is quite different from a student's lack of awareness of an accommodation or of its availability on campus, especially if the accommodation could enhance the student's academic performance. To offset this lack of awareness, colleges would be well advised to inform all students and all staff of the local availability of special accommodations for disabled students. This information could easily be included in such campus publications as the college catalog, the faculty and student handbooks, the college newspaper, as well as directives from the Coordinator of Disabled Student Services and/or the local Affirmative Action Officer.

Use and Importance. Table 6 presents the percentage of use, the average frequency of use and the average rating of importance for each accommodation.

The top five accommodations ranked by percentage of use for all types of disabled students follow (Instructor-Related Accommodations have been asterisked):

- Extra Personal Help* (43%)
- Tape Recorder (40%)
- Tutors (40%)
- Different Time Allotments* (25%)
- Study Guides/Notes* (22%)

The relatively high percentages of use of these five accommodations--two of the 30 Instructional Accommodations and three of the six Instructor-Related Accommodations--can be explained by their generic nature combined with their apparent availability on campus. The top three accommodations--Extra Personal Help, Tape Recorder, and Tutors--stand far above the others in terms of their percentages of use (i.e., at least 40%) by all disabled students.

Using the average frequencies of use to rank the accommodations, an

Table 6

Student Use and Rating of Accommodations[a]

| Accommodation | Use | Frequency[b] | Importance[c] |
|---|---|---|---|
| Instructional | % | Avg | Avg |
| Abacus | 6 | 1.5 | 1.5 |
| Bookholder | 3 | 1.8 | 2.6 |
| Braille Inform Materials | 1 | 2.5 | 2.5 |
| Braille Instruct Materials | 1 | 3.0 | 3.0 |
| Braille Slate and Stylus | 2 | 2.0 | 2.0 |
| Braille Transcription | 1 | 2.0 | 2.0 |
| Captioned Films | 5 | 1.4 | 2.1 |
| Captioned Videotapes | 6 | 1.9 | 2.5 |
| Cassette Duplication | 8 | 2.2 | 2.5 |
| Elastic Line Guide | | | |
| Electric Page Turner | | | |
| Finger Math | 1 | 1.5 | 2.5 |
| Hydraulic Lift | 6 | 2.1 | 2.3 |
| Interpreters | 7 | 2.7 | 2.4 |
| Lg Prt Inform Materials | 6 | 2.5 | 2.6 |
| Lg Prt Instruct Materials | 5 | 2.3 | 2.6 |
| Lg Prt Typewriter | 4 | 2.0 | 2.2 |
| Low Vision Reader | 6 | 2.4 | 2.6 |
| Magnifying Reader | 8 | 2.0 | 2.3 |
| Microcomputer | 5 | 2.3 | 3.0 |
| Notetakers | 17 | 2.4 | 2.9 |
| Optacon | 1 | 2.0 | 2.5 |
| Perkins Brailler | 3 | 2.0 | 3.0 |
| Raised Line Kit | 2 | 2.8 | 2.5 |
| Readers | 9 | 2.6 | 2.7 |
| Talking Books | 12 | 2.3 | 2.4 |
| Talking Calculator | 3 | 2.8 | 2.4 |
| Tape Recorder | 40 | 2.1 | 2.3 |
| Teletypewriter | 4 | 1.6 | 2.0 |
| Tutors | 40 | 1.8 | 2.7 |
| Instructor-Related | | | |
| Alternate Assignments | 14 | 2.0 | 2.7 |
| Different Exam Formats | 16 | 2.1 | 2.7 |
| Different Time Allotments | 25 | 2.3 | 2.9 |
| Extra Help | 43 | 2.2 | 2.8 |
| Study Guides/Notes | 22 | 2.3 | 2.8 |
| Student Volunteers | 19 | 2.3 | 2.7 |

[a]Totals may reflect missing data.

[b]Frequency of use scaled: Seldom (1 point), Occasionally (2 points), Frequently (3 points).

[c]Importance scaled: Low (1 point), Medium (2 points), High (3 points).

entirely different group emerges:

- Braille Instructional Materials (3.0)
- Raised Line Kit (2.8)
- Talking Calculator (2.8)
- Interpreters (2.7)
- Readers (2.6)

In contrast to the generic nature of the accommodations in the previous listing, these five accommodations are all highly specialized, designed primarily for use by the visually impaired. The relatively high average frequencies of use of these accommodations serve to indicate how strongly certain types of disabled students rely upon the more highly specialized or disability-specific accommodations to assist them in processing classroom information.

Finally, when ranked by the average scores of perceived importance, the following top five accommodations appear:

- Braille Instructional Materials (3.0)
- Microcomputer (3.0)
- Perkins Brailler (3.0)
- Notetakers (2.9)
- Different Time Allotments* (2.9)

This group of accommodations is neither exclusively generic nor exclusively specific. Three of them--Braille Instructional Materials, Perkins Brailler, and Notetakers--are disability-specific; the remaining two--Microcomputer and Different Time Allotments--are more generic in nature, and include one Instructor-Related accommodation (asterisked).

The heterogeneity in specialization of the accommodations in this ranking indicates that importance, as perceived by the students, cuts across both percentage of use and frequency of use. Two of these accommodations--Notetakers and Different Time Allotments--appeared in the top five percentage of use listing; a third--Braille Instructional Materials--appeared in the top five frequency of use listing. Although correlational analyses indicated no relationship between percentage of use and frequency of use ($r = -.04$), a significant

relationship ($p > .05$) was found between percentage of use and rating of importance ($r = .27$), and between frequency of use and rating of importance ($r = .49$). This latter correlation coefficient indicates clearly that the two variables--frequency of use and rating of importance--are dependent dimensions. However, since the frequency of use of an accommodation by a student is contingent upon the availability of the accommodation, and since the importance of an accommodation as perceived by a student is independent of the availability of the accommodation, both dimensions have been retained as separate entities, each contributing unique information to the overall scenario on the use of accommodations by disabled students.

Disability-Specific Rankings of Accommodations. In order to display a ranking of the accommodations used by a substantial number of students from each disability type, thereby refining the generalizability of the findings, a cutoff of at least 25% student use was applied as a criterion. The resulting disability-specific rankings of accommodations, including data on percentage of use, average frequency of use, and average rating of importance, are presented on Table 7.

As indicated, 18 of the total 36 accommodations achieved the criterion of 25% student use. These 18 accommodations include 12 of the 30 Instructional Accommodations and all six Instructor-Related Accommodations (asterisked). It is interesting to note that many of these accommodations have an interpersonal component. That is, they involve another person in the process of accommodating a disabled student. Examples include Extra Personal Help, Tutors, Readers, Interpreters, Notetakers, Student Volunteers, as well as the six Instructor-Related Accommodations. The appeal of these accommodations may well be due to the flexibility, responsiveness, and human contact inherent in such interpersonal efforts.

Table 7

Ranking of Accommodations Used by at Least 25% of the Students in Each Disability Type

| Disability/Accommodation | Use | Frequency[a] | | Importance[b] | |
|---|---|---|---|---|---|
| | % | Avg | | Avg | |
| Mobility (N = 68) | | | | | |
| Tape Recorder | 38 | 2.1 | | 2.3 | |
| Extra Personal Help* | 32 | 2.0 | | 2.8 | |
| Tutors | 32 | 1.5 | (1.88) | 2.6 | (2.55) |
| Visual (N = 14) | | | | | |
| Tape Recorder | 86 | 2.2 | | 2.2 | |
| Talking Books | 57 | 2.6 | | 2.4 | |
| Different Time Allotments* | 50 | 2.7 | | 3.0 | |
| Magnifying Reader | 50 | 2.4 | | 2.4 | |
| Readers | 50 | 2.6 | | 2.6 | |
| Different Exam Formats* | 43 | 2.0 | | 3.0 | |
| Extra Personal Help* | 43 | 2.3 | | 2.8 | |
| Low Vision Reader | 43 | 2.7 | | 2.7 | |
| Abacus | 36 | 1.8 | | 1.2 | |
| Student Volunteers* | 36 | 2.2 | | 2.6 | |
| Talking Calculator | 36 | 2.8 | | 2.4 | |
| Tutors | 36 | 2.6 | | 2.8 | |
| Study Guides/Notes* | 29 | 1.5 | (2.36) | 2.5 | (2.50) |
| Hearing (N = 21) | | | | | |
| Extra Personal Help* | 62 | 2.3 | | 2.7 | |
| Tutors | 43 | 1.9 | | 2.5 | |
| Interpreters | 38 | 2.9 | | 2.4 | |
| Notetakers | 38 | 2.6 | | 2.8 | |
| Teletypewriter | 29 | 1.5 | (2.27) | 2.0 | (2.53) |
| Speech (N = 4) | | | | | |
| Extra Personal Help* | 25 | 2.0 | | 3.0 | |
| Microcomputer | 25 | 3.0 | | 3.0 | |
| Tutors | 25 | 2.0 | (2.33) | 3.0 | (3.00) |
| Emotional (N = 8) | | | | | |
| Extra Personal Help* | 38 | 2.0 | | 3.0 | |
| Tutors | 38 | 1.3 | | 2.3 | |
| Study Guides/Notes* | 25 | 2.5 | | 2.5 | |
| Tape Recorder | 25 | 2.0 | (1.89) | 2.0 | (2.61) |
| Learning (N = 10) | | | | | |
| Extra Personal Help* | 70 | 2.4 | | 2.7 | |
| Tutors | 70 | 2.2 | | 2.6 | |
| Tape Recorder | 60 | 2.5 | (2.36) | 2.3 | (2.54) |
| Other (N = 13) | | | | | |
| Tutors | 39 | 1.2 | | 2.8 | |
| Extra Personal Help* | 31 | 2.3 | | 2.8 | |
| Tape Recorder | 31 | 1.3 | (1.57) | 2.0 | (2.56) |
| Multiple (N = 33) | | | | | |
| Extra Personal Help* | 52 | 2.3 | | 2.8 | |
| Tape Recorder | 49 | 2.1 | | 2.6 | |
| Tutors | 49 | 2.2 | | 3.0 | |
| Different Time Allotments* | 46 | 2.1 | | 2.7 | |
| Different Exam Formats* | 33 | 2.1 | | 2.6 | |
| Study Guides/Notes* | 33 | 2.4 | | 2.8 | |
| Student Volunteers | 33 | 2.1 | | 2.6 | |
| Notetakers | 30 | 2.6 | | 3.0 | |
| Alternate Assignments* | 27 | 1.7 | (2.18) | 2.4 | (2.74) |

*Instructor-Related Accommodation.



[a]Frequency of use scaled: Seldom (1 point), Occasionally (2 points), Frequently (3 points).

[b]Importance scaled: Low (1 point), Medium (2 points), High (3 points).

Of the 18 different accommodations listed on Table 7, the following eight were cited by more than one disability type:

- Extra Personal Help* (8 types)
- Tutors (8)
- Tape Recorder (6)
- Study Guides/Notes* (3)
- Different Exam Formats* (2)
- Different Time Allotments* (2)
- Notetakers (2)
- Student Volunteers* (2)

Although each of these eight accommodations had been used by more than one disability type, the percentages of student use for each accommodation as indicated on Table 7 vary across disabilities. This variance reflects the value of an accommodation relative to disability type. For example, the accommodation Tape Recorder had been used by 38% of the mobility disabled, 86% visual, 25% speech, 25% emotional, 60% learning, 31% other, and 49% of the multiple disabled.

In contrast to the eight accommodations cited by more than one disability type, the remaining 10 of the total 18 accommodations listed on Table 7 appear only once under the following disability types:

- Visual (Abacus, Low Vision Reader, Magnifying Reader, Readers, Talking Books, Talking Calculator)
- Hearing (Interpreters, Teletypewriter)
- Speech (Microcomputer)
- Multiple (Alternate Assignments*)

As expected, most of these accommodations are specific to the disabilities under which they appear. The presence in this listing of two generic accommodations--Microcomputer and Alternate Assignments--suggests that the majority of disabled students in the sample had received limited exposure to them in their classes. Given the promise these two accommodations hold for all students--but especially for those with disabilities--colleges would do well to examine at the local level the reasons for the limited use of microcomputers and alternate assignments.

Of the eight separate disability types displayed on Table 7, the visually disabled and the multiple disabled had used the largest number of accommodations (13 and 9 accommodations respectively). This was followed by the hearing disabled and the emotionally disabled (5 and 4 accommodations respectively). The remaining four disability types--mobility, speech, learning, and other--had each used comparatively few accommodations (3).

The averages for frequency of use and rating of importance further substantiate the relative degree to which different disability types rely upon selected accommodations to enable them to participate more fully in an academic setting. It is interesting to note that some of the disability types with the fewest accommodations listed (e.g., speech disabled and learning disabled) had used them quite frequently and had given them high importance ratings. Moreover, as the grand means (in parentheses) for frequency and for importance indicate, the visually disabled and the learning disabled had used the accommodations most frequently overall (both grand means 2.36); while the speech disabled and the multiple disabled had given the accommodations the highest ratings of importance of all eight disability types (3.00 and 2.74 respectively).

Availability and Provider. Table 8 presents the percentages of all disabled students who responded to the items on availability and provider for each of the 30 Instructional Accommodations. Since the provision of the six Instructor-Related Accommodations reflects an individual instructor's decision rather than a college-wide policy, and since Instructor-Related Accommodations by definition can be provided only by individual instructors, respondents were not asked to rate the availability nor to indicate the provider of these accommodations.

As indicated, the following 11 accommodations were given "Excellent/Good" availability ratings by a majority of the students who had used them:

Table 8

Availability and Provider of Instructional Accommodations

| Accommodation[b] | N[c] | Availability[a] Excellent/ Good | Availability[a] Fair/ Poor | Provider Self | Provider Agency | Provider Instructor | Provider College | Provider Other |
|---|---|---|---|---|---|---|---|---|
| Instructional | | % | % | % | % | % | % | % |
| Abacus | 11 | 18 | 64 | 55 | 18 | 18 | | 9 |
| Bookholder | 5 | 20 | | 60 | 20 | | | 20 |
| Braille Inform Materials | 2 | 50 | 50 | | 100 | | | |
| Braille Instruct Materials | 1 | | 100 | 100 | | | | |
| Braille Slate and Stylus | 4 | | 100 | 75 | 25 | | | |
| Braille Transcription | 2 | | 100 | | 50 | | | 50 |
| Captioned Films | 12 | 58 | 42 | | | 8 | 58 | 8 |
| Captioned Videotapes | 11 | 45 | 27 | 9 | | 18 | 45 | |
| Cassette Duplication | 13 | 77 | 15 | 15 | | | 69 | 8 |
| Elastic Line Guide | | | | | | | | |
| Electric Page Turner | | | | | | | | |
| Finger Math | 2 | 100 | | | | 50 | | 50 |
| Hydraulic Lift | 11 | 36 | 27 | 27 | 18 | | 36 | 18 |
| Interpreters | 12 | 58 | 33 | 17 | 67 | | 17 | |
| Lg Prt Inform Materials | 11 | 67 | 18 | 18 | | 18 | 55 | 9 |
| Lg Prt Instruct Materials | 9 | 78 | 11 | | | 44 | 44 | |
| Lg Prt Typewriter | 8 | 50 | 50 | | 17 | 13 | 13 | |
| Low Vision Reader | 11 | 36 | 27 | | 9 | 9 | 55 | |
| Magnifying Reader | 13 | 31 | 38 | 8 | 15 | | 54 | |
| Microcomputer | 8 | 88 | 13 | 25 | | | 75 | |
| Notetakers | 29 | 48 | 17 | 14 | 3 | 21 | 41 | 17 |
| Optacon | 2 | | 50 | | | | 50 | 50 |
| Perkins Brailler | 5 | 20 | 60 | 40 | 20 | 20 | | 20 |
| Raised Line Kit | 4 | | 100 | 75 | 25 | | | |
| Readers | 15 | 67 | 33 | 33 | 13 | | 53 | |
| Talking Books | 21 | 43 | 38 | 14 | 33 | 5 | 10 | 29 |
| Talking Calculator | 8 | 38 | 62 | | 25 | | 38 | |
| Tape Recorder | 69 | 59 | 23 | 46 | 17 | 3 | 28 | 1 |
| Teletypewriter | 7 | 57 | | | | | 86 | |
| Tutors | 68 | 74 | 18 | 7 | 4 | 16 | 66 | 3 |

[a]Availability scaled: Excellent (4 points), Good (3 points), Fair (2 points), Poor (1 point). Percentages have been combined: Excellent/Good, Fair/Poor.

[b]Respondents were not asked to rate Availability or to list Provider for Instructor-Related Accommodations.

[c]Number of students who responded "YES" for each accommodation.

- Finger Math (100%)
- Microcomputer (88%)
- Large Print Instructional Materials (78%)
- Cassette Duplication Services (77%)
- Tutors (74%)
- Large Print Informational Materials (67%)
- Readers (67%)
- Tape Recorder (59%)
- Captioned Films (58%)
- Interpreters (58%)
- Teletypewriter (57%)

Nine of these accommodations--excepting Interpreters and Tape Recorder--were perceived by a majority of the students as having been provided by the colleges and/or by individual instructors. The two remaining accommodations were viewed as having been provided by an agency (Interpreters) and by the students themselves (Tape Recorder). The finding that the nine accommodations provided by the colleges and/or by instructors at the colleges vary in degree of specialization, attests to the fact that colleges have undertaken to provide not only generic but also specific accommodations for their disabled students.

The following seven accommodations received "Fair/Poor" availability ratings from a majority of the students who had used them:

- Braille Instructional Materials (100%)
- Braille Slate and Stylus (100%)
- Braille Tanscription Services (100%)
- Raised Line Kit (100%)
- Abacus (64%)
- Talking Calculator (62%)
- Perkins Brailler (60%)

These seven accommodations were noted by the students as having been provided primarily by three sources--self, agency, and college. The finding that a number of students themselves had provided five of these seven accommodations--excepting Braille Transcription Services and Talking Calculator--is consistent with the low availability ratings they had assigned to them. That is, perhaps the students had obtained certain accommodations themselves because they were dissatisfied with, or unaware of, the local availability

of the desired accommodations. Finally, in contrast to the varying degrees of specialization of the 11 accommodations with "Excellent/Good" availability ratings, these seven accommodations are all disability-specific, designed primarily for visually impaired students.

The five sources of accommodations listed on the questionnaire were perceived by the students as having provided the following totals of separate accommodations:

- College (19 accommodations)
- Agency (18)
- Self (18)
- Other (14)
- Instructor (13)

It is interesting to note that two of these sources--college and agency--together account for 26 of the total 30 Instructional Accommodations. This finding augurs well the impact that these two sources, in cooperation with knowledgeable faculty, will continue to have in addressing the needs of disabled students in postsecondary occupational education.

## Summary and Implications

In sum:

- The typical disabled student in the sample was over 21 years of age, not employed, attending college on a full-time basis, enrolled in day classes.
- The occupational education program most preferred by both male and female disabled students was Business and Office Education.
- Over half of the disabled students had some form of impaired mobility.
- Most disabled students were receiving agency assistance, particularly from the Office of Vocational Rehabilitation and Social Security.
- The special instructional problem selected by the largest number of disabled students was time limits on exams.
- Better notetaking skills emerged as a priority need for many disabled students.
- Most disabled students had never used many of the accommodations.
- The accommodations with the highest percentages of use included Extra Personal Help, Tutors, and Tape Recorder.
- The accommodations given the highest ratings on importance were those with an interpersonal, or human contact, component.
- The largest number of accommodations had been used by the visually disabled and the multiple disabled students.
- The primary providers of accommodations included colleges, agencies, and the disabled students themselves.

The following are implications drawn from the results of this study:

### Identification of Disabled Students

The methods used on postsecondary campuses to identify disabled students are at best inadequate. Most colleges use a "catch-as-catch-can" approach with the result that many disabled students remain unidentified and consequently unaware of accommodations and services available to them.

The problem of identifying disabled students became apparent shortly after the project had begun. Virtually every contact person at the 19 cooperating colleges reported having difficulty obtaining a sample of disabled students large

enough to be representative of the population of disabled students known to be "out there." The resulting small sample size reflects this problem.

The lack of adequate data on the number of disabled students currently enrolled in two-year colleges hampers efforts by colleges to develop policies and implement programs to address the needs of those students. Moreover, it can distort the significance of local accessibility efforts, and create a false impression of achievement. For example, the finding that over half of the students in the sample had some form of mobility impairment is doubtless an artifact of the methods used by the colleges in the study to identify disabled students. Students with mobility disabilities are more readily reported than students with other less obvious--but perhaps more academically debilitating--disabilities. Further, as noted in this report, mobility disabled students without concomitant hand function impairment have little need for additional accommodations once they have gained "physical" access to a classroom or lab. This is not true for most other types of disabled students (e.g., the visually or the hearing impaired), whose need for accommodations continues--indeed increases--after they have entered an instructional setting. The artifactually-inflated representation of mobility disabled students on campus could induce a college to focus its efforts on this group--a group that requires comparatively few accommodations, most of which are directed toward structural modification. Such a focus could lead to the erroneous conclusion that a high degree of accessibility for all disabled students had been achieved, which in turn could undermine existing arguments for additional support of accessibility efforts.

This scenario warrants the need for colleges to explore improved methods of implementing simple, confidential processes for student self-identification at both institutional (for purposes of collecting data, developing policies,

and planning programs) and instructional (for purposes of determining needs and providing accommodations) levels. As an example at the institutional level, several students commented on their willingness to provide disability-related information on standard forms as part of the admissions process. As an example at the instructional level, several students described similar experiences in which a faculty member's non-patronizing expression of sensitivity to disabilities during an opening class session was sufficient to prompt their approach.

Dissemination of Information

The finding that a substantial number of disabled students in the sample were not familiar with several accommodations or aware of their local availability points to a need for improved dissemination of accessibility-related information to all students and all staff. As noted in this report, this information could easily be included in such campus publications as the college catalog, the faculty and student handbooks, the college newspaper, as well as directives, fact sheets, and flyers from the Coordinator of Disabled Student Services.

In addition, colleges should encourage the development of interdisciplinary linkages in order to promote the sharing of problems and solutions among faculty members. These collaborative efforts not only would help to dispel the notion that accommodating disabled students demands expensive, elaborate equipment but also would help to apprise administrators of the realities of accommodating disabled students in instructional settings.

Finally, the Coordinator of Disabled Student Services should explore the feasibility of incorporating into local dissemination efforts the contributions provided by inservice programs, hot-line services, as well as regional and national networks and clearinghouses.

The "Process" of Program Access

The results of this study show that two-year colleges in New York State have become increasingly accessible to disabled students. All 19 cooperating colleges currently make available to disabled students a variety of both generic and specific accommodations. Virtually every type of disabled student in the sample was represented in each of the eight occupational education program areas. Clearly, the charge for program access is being addressed by two-year colleges.

However, much remains to be done. Program access is not an all-or-nothing proposition. Rather, it is a process--a process demanding ongoing, intensive review. A college can never fully achieve program access: as it modifies its architectural configuration to improve accessibility, it uncovers many more such barriers to strike down; as it increases its store of available accommodations, it discovers additional adaptations to make; as it explores the sensitivity of its staff to the needs of disabled students, it exposes deeper, attitudinal issues to confront.

The "process" of program access suggests a need for colleges to establish--or strengthen the membership of--local advisory committees. Comprising various faculty, staff, and student representatives--both disabled and nondisabled--these committees could be charged with maintaining the local priority of program access by developing an action plan, monitoring the progress of accessibility efforts, and disseminating information to all members of the campus community. Such committees would serve not only to promote the success of program access on personal, social, and academic levels, but also to prevent the "open door" of two-year colleges from becoming a revolving door for disabled students.

Appendices

## Definitions of Disabilities

Section 504 of the Rehabilitation Act of 1973 defines a "handicapped person" as any person who (1) has a physical or mental impairment which substantially limits one or more major life activities; (2) has a record of such an impairment; or (3) is regarded as having such an impairment.

For purposes of this project, a disabled student is any student who cannot succeed in a regular occupational education program without special accommodations. The specific types of disabilities used in the project are defined below. The definitions are based upon the federal definitions of disabilities from the Education for All Handicapped Children Act of 1975 (P.L. 94-142).

Mobility Disabled - a person with a severe orthopedic, neurological, or motor impairment. The mobility disabilities present in the sample include the following: spina bifida; arthritis; paraplegia; hand function impairment; muscular dystrophy; spastic paralysis; post-polio paralysis; and arm, chest, neck, spine, and shoulder injuries.

Visually Disabled - a person whose partial or complete loss of vision precludes normal educational functioning without special accommodations.

Hearing Disabled - a person whose receptive and expressive communication skills are so limited by hearing loss that participation in a regular classroom situation requires special accommodations.

Speech Disabled - a person displaying a disorder in verbal communication such as stuttering, impaired articulation, unintelligible speech, or other vocal deviations.

Emotionally Disabled - a person exhibiting one or more of the following characteristics over a long period of time and to a marked degree: an inability to learn which cannot be explained by intellectual, sensory, or health factors; an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; inappropriate types of behavior or feelings under normal circumstances; a general pervasive mood of unhappiness or depression; or a tendency to develop physical symptoms or fears associated with personal or school problems.

Learning Disabled - a person with a disorder in one or more of the basic psychological processes needed to receive, organize, or express information including the ability to understand or use spoken or written language.

Other Disabled - a person with limited strength, vitality, or alertness due to chronic or acute health problems. The other disabilities present in the sample include heart disorders, hemophilia, epilepsy, diabetes, and severe allergies.

Multiple Disabled - a person having more than one of the primary disabilities defined above.

# INSTRUCTIONAL ACCOMMODATIONS INVENTORY

## Background Information

1. Sex: ____ Male ____ Female

2. Age: ____ 20 or younger ____ 21-24 ____ 25-34 ____ 35 or older

3. Employment status: ____ Not employed ____ Employed part-time ____ Employed full-time

4. Name of college: _____

5. Major program/curriculum: _____

6. Are you a full-time student (12 credits or more)? ____ Yes ____ No

7. Semester of enrollment: ____ First ____ Second ____ Third or beyond

8. When do you attend classes? ____ Days only ____ Evenings only ____ Both days and evenings

9. Are you currently receiving assistance from any agency or organization because of your disability?

____ Yes. If yes, which one(s)?
- ____ Office of Vocational Rehabilitation
- ____ Commission for the Blind (Visually Handicapped)
- ____ Veterans Administration
- ____ Social Security
- ____ Other (specify) _____

____ No.

10. Please indicate the nature and degree of your disability (check all that apply).

| Nature of Disability | Brief Description |
|---|---|
| ____ Mobility | _____ |
| ____ Visually | _____ |
| ____ Hearing | _____ |
| ____ Speech | _____ |
| ____ Emotionally | _____ |
| ____ Learning disabled | _____ |
| ____ Other | _____ |

Background Information

11. Use this space to provide additional information concerning your disability as it relates to your academic performance.

_____

_____

_____

_____

_____

_____

12. Which of the following represent special problems for you? (check all that apply)

____ laboratory/shopwork
____ height of desk/lab table
____ discussion classes
____ large lecture classes
____ not enough time between classes
____ time limits on exams
____ instructors with full beards
____ instructors who use the chalkboard a great deal
____ others (please list) _____

_____

_____

____ none of the above

Instructional Accommodations

1. Have you ever used ABACUS

___ NO IF NO, WHY NOT?
- ___ I don't know what this accommodation is.
- ___ I don't need this accommodation.
- ___ I'm not sure this accommodation is available at this college.
- ___ Other (specify) _____

___ YES IF YES:

a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation?
- ___ I did. / My family did.
- ___ An agency (specify) _____
- ___ An instructor
- ___ The college
- ___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

2. Have you ever used BOOKHOLDER

___ NO IF NO, WHY NOT?
- ___ I don't know what this accommodation is.
- ___ I don't need this accommodation.
- ___ I'm not sure this accommodation is available at this college.
- ___ Other (specify) _____

___ YES IF YES:

a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation?
- ___ I did. / My family did.
- ___ An agency (specify) _____
- ___ An instructor
- ___ The college
- ___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

3. Have you ever used BRAILLE INFORMATIONAL MATERIALS (E.G., COURSE SCHEDULES)

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

4. Have you ever used BRAILLE INSTRUCTIONAL MATERIALS (E.G., COURSE OUTLINES)

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

5. Have you ever used BRAILLE SLATE AND STYLUS

___ NO IF NO, WHY NOT?
- ___ I don't know what this accommodation is.
- ___ I don't need this accommodation.
- ___ I'm not sure this accommodation is available at this college.
- ___ Other (specify) _____

___ YES IF YES:

a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation?
- ___ I did. / My family did.
- ___ An agency (specify) _____
- ___ An instructor
- ___ The college
- ___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

6. Have you ever used BRAILLE TRANSCRIPTION SERVICES

___ NO IF NO, WHY NOT?
- ___ I don't know what this accommodation is.
- ___ I don't need this accommodation.
- ___ I'm not sure this accommodation is available at this college.
- ___ Other (specify) _____

___ YES IF YES:

a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation?
- ___ I did. / My family did.
- ___ An agency (specify) _____
- ___ An instructor
- ___ The college
- ___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

7. Have you ever used CAPTIONED FILMS

___ NO IF NO, WHY NOT?
- ___ I don't know what this accommodation is.
- ___ I don't need this accommodation.
- ___ I'm not sure this accommodation is available at this college.
- ___ Other (specify) _____

___ YES IF YES:

a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation?
- ___ I did. / My family did.
- ___ An agency (specify) _____
- ___ An instructor
- ___ The college
- ___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High Importance ___ Medium Importance ___ Low Importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

8. Have you ever used CAPTIONED VIDEOTAPES

___ NO IF NO, WHY NOT?
- ___ I don't know what this accommodation is.
- ___ I don't need this accommodation.
- ___ I'm not sure this accommodation is available at this college.
- ___ Other (specify) _____

___ YES IF YES:

a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation?
- ___ I did. / My family did.
- ___ An agency (specify) _____
- ___ An instructor
- ___ The college
- ___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High Importance ___ Medium Importance ___ Low Importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

9. Have you ever used CASSETTE DUPLICATION SERVICES

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

10. Have you ever used ELASTIC LINE WRITING GUIDE

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

11. Have you ever used ELECTRIC PAGE TURNER

___ NO IF NO, WHY NOT?
- ___ I don't know what this accommodation is.
- ___ I don't need this accommodation.
- ___ I'm not sure this accommodation is available at this college.
- ___ Other (specify) _____

___ YES IF YES:

a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation?
- ___ I did. / My family did.
- ___ An agency (specify) _____
- ___ An instructor
- ___ The college
- ___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor



12. Have you ever used FINGER MATH (CHISANBOP)

___ NO IF NO, WHY NOT?
- ___ I don't know what this accommodation is.
- ___ I don't need this accommodation.
- ___ I'm not sure this accommodation is available at this college.
- ___ Other (specify) _____

___ YES IF YES:

a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation?
- ___ I did. / My family did.
- ___ An agency (specify) _____
- ___ An instructor
- ___ The college
- ___ Other (specify) _____

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d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

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e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

13. Have you ever used HYDRAULIC LIFT

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

14. Have you ever used INTERPRETERS

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

15. Have you ever used LARGE PRINT INFORMATIONAL MATERIALS (E.G., COURSE SCHEDULES)

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

16. Have you ever used LARGE PRINT INSTRUCTIONAL MATERIALS (E.G., COURSE OUTLINES)

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

17. Have you ever used LARGE PRINT TYPEWRITER

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

18. Have you ever used LOW VISION READER

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

19. Have you ever used MAGNIFYING READER

___ NO IF NO, WHY NOT?
- ___ I don't know what this accommodation is.
- ___ I don't need this accommodation.
- ___ I'm not sure this accommodation is available at this college.
- ___ Other (specify) _____

___ YES IF YES:

a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation?
- ___ I did. / My family did.
- ___ An agency (specify) _____
- ___ An instructor
- ___ The college
- ___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

20. Have you ever used MICROCOMPUTER

___ NO IF NO, WHY NOT?
- ___ I don't know what this accommodation is.
- ___ I don't need this accommodation.
- ___ I'm not sure this accommodation is available at this college.
- ___ Other (specify) _____

___ YES IF YES:

a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation?
- ___ I did. / My family did.
- ___ An agency (specify) _____
- ___ An instructor
- ___ The college
- ___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

21. Have you ever used NOTETAKERS

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

22. Have you ever used OPTACON

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

23. Have you ever used PERKINS BRAILLE WRITER

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

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24. Have you ever used RAISED LINE DRAWING KIT

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____



d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

25. Have you ever used READERS

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

26. Have you ever used TALKING BOOKS

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

27. Have you ever used TALKING CALCULATOR

___ NO IF NO, WHY NOT? ____ I don't know what this accommodation is.
____ I don't need this accommodation.
____ I'm not sure this accommodation is available at this college.
____ Other (specify) _____

___ YES IF YES: a. How often? ____ Frequently ____ Occasionally ____ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ____ I did. / My family did.
____ An agency (specify) _____
____ An instructor
____ The college
____ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
____ High importance ____ Medium importance ____ Low importance

e. Rate the availability of this accommodation at the college:
____ Excellent ____ Good ____ Fair ____ Poor

28. Have you ever used TAPE RECORDER

___ NO IF NO, WHY NOT? ____ I don't know what this accommodation is.
____ I don't need this accommodation.
____ I'm not sure this accommodation is available at this college.
____ Other (specify) _____

___ YES IF YES: a. How often? ____ Frequently ____ Occasionally ____ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ____ I did. / My family did.
____ An agency (specify) _____
____ An instructor
____ The college
____ Other (specify) _____

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d. Rate the importance of this accommodation to your academic success:
____ High importance ____ Medium importance ____ Low importance

e. Rate the availability of this accommodation at the college:
____ Excellent ____ Good ____ Fair ____ Poor

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Instructional Accommodations

29. Have you ever used TELETYPEWRITER

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

30. Have you ever used TUTORS

___ NO IF NO, WHY NOT? ___ I don't know what this accommodation is.
___ I don't need this accommodation.
___ I'm not sure this accommodation is available at this college.
___ Other (specify) _____

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ___ I did. / My family did.
___ An agency (specify) _____
___ An instructor
___ The college
___ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

e. Rate the availability of this accommodation at the college:
___ Excellent ___ Good ___ Fair ___ Poor

Instructional Accommodations

31. Have you ever used ___ OTHER (SPECIFY) _____

___ NO IF NO, WHY NOT? ____ I don't know what this accommodation is.
____ I don't need this accommodation.
____ I'm not sure this accommodation is available at this college.
____ Other (specify) _____

___ YES IF YES: a. How often? ____ Frequently ____ Occasionally ____ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ____ I did. / My family did.
____ An agency (specify) _____
____ An instructor
____ The college
____ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
____ High importance ____ Medium importance ____ Low importance

e. Rate the availability of this accommodation at the college:
____ Excellent ____ Good ____ Fair ____ Poor

32. Have you ever used ___ OTHER (SPECIFY) _____

___ NO IF NO, WHY NOT? ____ I don't know what this accommodation is.
____ I don't need this accommodation.
____ I'm not sure this accommodation is available at this college.
____ Other (specify) _____

___ YES IF YES: a. How often? ____ Frequently ____ Occasionally ____ Seldom

b. In which course(s)? _____

c. Who provided the accommodation? ____ I did. / My family did.
____ An agency (specify) _____
____ An instructor
____ The college
____ Other (specify) _____

d. Rate the importance of this accommodation to your academic success:
____ High importance ____ Medium importance ____ Low importance

e. Rate the availability of this accommodation at the college:
____ Excellent ____ Good ____ Fair ____ Poor

Instructor-Related Accommodations

1. Has an instructor ever used ALTERNATE ASSIGNMENTS (SPECIFY) to accommodate your needs?

___ NO IF NO, GO ON TO THE NEXT ITEM.

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

d. Comment: _____

2. Has an instructor ever used DIFFERENT EXAM FORMATS (SPECIFY) to accommodate your needs?

___ NO IF NO, GO ON TO THE NEXT ITEM.

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

d. Comment: _____

3. Has an instructor ever used DIFFERENT TIME ALLOTMENTS to accommodate your needs?

___ NO IF NO, GO ON TO THE NEXT ITEM.

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

d. Comment: _____

Instructor-Related Accommodations

4. Has an instructor ever used EXTRA PERSONAL HELP to accommodate your needs?

___ NO IF NO, GO ON TO THE NEXT ITEM.

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

d. Comment: _____

5. Has an instructor ever used SPECIAL STUDY GUIDES/NOTES to accommodate your needs?

___ NO IF NO, GO ON TO THE NEXT ITEM.

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

d. Comment: _____

6. Has an instructor ever used STUDENT VOLUNTEERS to accommodate your needs?

___ NO IF NO, GO ON TO THE NEXT ITEM.

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

d. Comment: _____

Instructor-Related Accommodations

7. Has an instructor ever used ___ OTHER (SPECIFY) _____ to accommodate your needs?

___ NO IF NO, GO ON TO THE NEXT ITEM.

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

d. Comment: _____

8. Has an instructor ever used ___ OTHER (SPECIFY) _____ to accommodate your needs?

___ NO IF NO, GO ON TO THE NEXT ITEM.

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

d. Comment: _____

9. Has an instructor ever used ___ OTHER (SPECIFY) _____ to accommodate your needs?

___ NO IF NO, GO ON TO THE NEXT ITEM.

___ YES IF YES: a. How often? ___ Frequently ___ Occasionally ___ Seldom

b. In which course(s)? _____

c. Rate the importance of this accommodation to your academic success:
___ High importance ___ Medium importance ___ Low importance

d. Comment: _____

Additional Comments

1. Assume you are an instructor of a student with a disability similar to yours. What instructional methods, techniques, aids, devices, services, or practices would you use to better meet the needs of this student? Feel free to suggest accommodations you may not have personally experienced.

2. We are also interested in learning about any other techniques, services, or practices that have been especially helpful in making it possible for you to attend college. Please describe any such accommodations in enough detail so that these accommodations can be made available to other students. You may include information about any aspect of attending college, such as, library, admissions, orientation, counseling, safety, or other special services.



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Thank you for your help. Feel free to make additional comments.

Appendix C

## Definitions of Accommodations

A primary source of information on instructional aids of the type listed in the survey is the reference circular "Reading, Writing, and Other Communication Aids for Visually and Physically Handicapped Persons" published by the National Library Service for the Blind and Physically Handicapped. Information in this reference circular is compiled from responses to a questionnaire sent periodically to producers and distributors of aids and appliances for visually and physically handicapped individuals. Items selected for inclusion are designed for use by visually and physically handicapped persons in reading, writing, and related activities. Full addresses, verification of current prices, and ordering information may be obtained from the sources listed in the section "Addresses of Sources."

Copies of this circular and further information may be obtained by contacting one of the two Regional Libraries established to serve New York State:

New York State Library for the Blind and Visually Handicapped
Cultural Education Center
Empire State Plaza
Albany, New York 12230 (518) 474-5935

(serving Westchester and Rockland Counties and all counties in New York State North and West of New York City)

New York Public Library for the Blind and Physically Handicapped
166 Avenue of the Americas
New York, New York 10013 (212) 925-1011

(serving New York City and Long Island)

* * *

INSTRUCTIONAL ACCOMMODATIONS

Abacus - a manually operated device for performing calculations by sliding counters along rods.

Bookholder - an adjustable bookstand with vertical and horizontal straps to hold material to the support frame.

Braille Informational/Instructional Materials - materials prepared in braille.

Braille Slate and Stylus - the traditional method for writing braille by hand. The metal or plastic slate guides the stylus in punching braille dots downward into paper.

Braille Transcription Services - transcription of printed materials into braille.

Captioned Films/Videotapes - designed to aid deaf persons, captioned films and videotapes display the verbal component or sound track simultaneously on the screen with the picture.

Cassette Duplication Services - facilities available to enable students to make additional tapes of cassette recordings.

Elastic Line Writing Guide - a handwriting aid with standard line spacing which enables the blind or visually impaired to write with even spacing and margins.

Electric Page Turner - a device utilizing sensitive touch controls which will hold and turn pages of books and magazines.

Finger Math - (Chisanbop) Korean technique using the fingers for arithmetic and mathematical computations.

Hydraulic Lift - a pressurized lift to assist mobility disabled persons, often used to elevate a wheelchair-bound person in order to make a work space more accessible, e.g., lab table or automobile engine compartment.

Interpreters - a professional person who assists a deaf person in communicating with hearing people who cannot sign. There are two types of interpreters: the oral interpreter "mouths" what is being said while a manual interpreter uses sign language. The two methods are often used simultaneously.

Large Print Informational/Instructional Materials - materials prepared in large print.

Large Print Typewriter - various models equipped with a standard keyboard and large print type faces.

Low Vision Reader - a portable closed circuit television system which allows a visually impaired person to place written material or any fine work in front of the camera and view the enlarged image on the television screen.

Magnifying Reader - a device to magnify printed material. Mounted on a heavy base, it consists of a simple magnifying lens with a light and moveable swing arm.

Microcomputer - the use of a computer or personal computer to assist with the instructional and learning process. The three principal areas in which computers can help to teach include tutorial where the computer actually teaches or "lectures" the student, drill and practice, and simulation.

Notetakers - a fellow student or other appointed person who is "contracted" to assist a disabled student (primarily the deaf) by taking notes or making a carbon or other copy of notes from class lectures and discussions.

Optacon - OPtical-to-TActile CONverter) a general purpose reading system which allows a blind person to read print by converting the visual image to a vibrating tactile image which can be felt with the finger. It can be used to read any language, math symbols, diagrams or drawings. Attachments for the basic camera enable the unit to also read video computer terminals and electronic calculators, and to monitor material in a typewriter. Training is required to make effective use of this device.

Perkins Brailler - a manually operated machine to print braille characters.

Raised Line Drawing Kit - a device used by visually impaired students to reproduce charts, graphs, and diagrams. The kit consists of a rubber like clip board over which pieces of plastic film are placed. Patterns are then traced on the plastic film with a ball point pen-type stylus causing the plastic to stretch and raise producing a tactile image. The lines are also easily followed by sight.

Readers - a volunteer or employee of a blind or partially sighted student who reads printed material in person or onto audio tape.

Talking Books - books recorded on discs or on cassettes. A talking book machine or cassette book machine is then used to play back the disc or cassette. Recordings for the Blind, a national, non-profit voluntary organization provides taped educational books, free on loan to print-handicapped students as well as to nonstudents who require specialized reading material in their professions or vocations. Many community-based volunteer agencies also produce books in recorded form.

Talking Calculator - designed for voice and/or braille output rather than, or in addition to, visual displays.

Tape Recorder - a device for recording and playing back sound.

Teletypewriter - a device capable of being used over most telephonic communications systems to send and receive signals and produce hard copy from them. The teletypewriter allows deaf persons to communicate over the telephone. Some type the message on a paper roll while others display the message on an electronic display panel or on a television-like screen.

Tutors - a person procured by a student outside the college or a volunteer or employee in the college tutoring center or lab who individually instructs or tutors the student in a special subject area or for a particular purpose.

INSTRUCTOR-RELATED ACCOMMODATIONS

Alternate Assignments - an instructor approved substitute or modified assignment which is designed to allow a disabled student to obtain the same knowledge, skills, or results as nondisabled students.

Different Exam Formats - a modified exam copy or alternate form or procedure which allows a disabled student to perform optimally. Modifications may include take-home exams, oral exams, large print formats, special monitoring and/or physical assistance.

Different Time Allotments - an instructor approved reasonable extension of time or flexibility of scheduling to allow a disabled student to complete class assignments or tests.

Extra Personal Help - special one-to-one assistance for a disabled student provided by the instructor.

Special Study Guides/Notes - outlines of lectures, chapters, activities, procedures, etc. prepared by the instructor to assist students in obtaining or recording essential information.

Student Volunteers - an informal, voluntary arrangement whereby a nondisabled student is appointed by an instructor to assist a disabled student with classwork.

Appendix D

## Student Comments

At the end of the questionnaire, students were given the opportunity to respond to two open-ended questions which probed additional aspects of their academic experience. Students responded liberally to both questions.

The first question asked them to assume they were an instructor of a student with a disability similar to their own and then to list any methods, techniques, aids, devices, services, or practices that they would use to better meet the needs of such a disabled student. Students from all eight disability types responded with a variety of suggestions. Strong emphasis was placed on personal communication and interaction between the student and instructor. The human-contact component detected in the tabular data presented earlier in this report once again emerged clearly from the student comments.

The second open-ended question asked disabled students for any other institutional services or practices that had been especially helpful in making it possible for them to attend college. Students were encouraged to describe any such accommodations in enough detail so that they could be made available to other students.

The following selected comments are representative of the concerns expressed by the disabled students. The 20 identified categories of comments have been grouped according to the following three general areas or themes: the students themselves in the teaching-learning process (Student-Centered), the instructor in the teaching-learning process (Instructor-Centered), and the college or institution as context for the teaching-learning process (Institution-Centered). These themes reflect the scope of disabled student concerns and provide a framework for considering the individual comments.

Student-Centered Comments

Although the disabled students in the sample acknowledged their responsibility in the teaching-learning process, their comments reflect a special concern with their ability to receive and process classroom information. Help with notetaking skills emerged as a critical concern for the majority of students. Their need for and evaluation of tape recorders, interpreters, readers, tutors, and other academic support services such as labs and learning centers are also apparent in the following comments.

Notetaking.

"It is hard for me to take notes as fast as the professor is lecturing and get all the correct information I need (my weak point). In this case I feel very strongly that teachers use notes that students can copy and listen to him lecture on each of the important topics." (hearing)

"Since I have a reading problem and taking notes is a problem, I would like some help in that area." (hearing)

"In lecture courses the instructor might hand out an outline of each chapter gone over in a class. Leave enough room between each subject so a student can read the chapter and add important notes on their own. This would be especially good if a student misses a lecture." (mobility)

"Allow student to see teacher's notes if unable to get them from board or recorder." (visual)

"Maybe the instructor could give a set of notes for the full 10 weeks to the student instead of having to get someone to take notes because sometimes you can get bad notetakers and miss important facts." (visual)

"First, if I were an instructor, I'd be sure that this person wasn't feeling they were imposing. If needed, I'd make an outline, chapter by chapter. I'd ask for a volunteer in class to help with notes." (mobility)

"If the student is unable to attend several classes due to illness, then the instructor should be sure the student had accurate copies of the class notes. If a student has an illness, which causes him/her to miss class, I don't feel they should suffer without the notes from the class." (multiple)

"I would suggest the teacher or counselor suggest a clipboard as I only have the use of one arm." (multiple)

Tape Recorders. The use of a tape recorder was seen as a key accommodation in the reception and processing of information:

"[If I were an instructor] I would make sure that tape recorders would be made available to this student so he/she can record all discussions, then take notes later from the recordings--this way there is no tension for this student. The tension makes it very hard for the student to interpret what is going on in class." (hearing)

"[If I were an instructor] I would tape record the lectures. Then make them available for students to listen to again. I would also spend extra time with students who had problems understanding material." (learning)

"Allow the use of tape recorders or other such aids in the classroom." (visual)

"Let all classes be taped." (visual)

"Tape recorders in lectures would help me." (mobility)

"The use of a tape recorder to take notes." (multiple)

"The textbooks should be put on tape." (multiple)

"Make sure you are allowed to tape classes with no hassle." (mobility)

Interpreters.

"I would like to have an interpreter come everyday because I need a lot more information of what the teacher say." (hearing)

"When I had no interpreter, the college provided me a tape recorder. At night my interpreter translated it for me. The performance of this type was very poor because it was hard to do." (hearing)

"The college should have a special interpreter service of their own and not depend on any interpreters from either RIT or outside source. _____ should consider getting interpreters as a full-time job like other colleges. It should also pay some salaries for the notetakers as in my experience, many notetakers were not outstanding and need professional training. . . I believe the volunteer basis is not working well." (hearing)

Readers.

"School should provide a supply of readers to aid studies." (visual)

"Retired senior citizen's volunteer program has done recording for me. CAB has volunteers who provide multi-services, would suggest any blind students enrolling be put in immediate contact of CAB for all the services they have." (visual)

Tutors.

"One-to-one help outside of class." (multiple)

"If I were an instructor, I would provide students (with disabilities similar to mine) with student volunteers and extra personal help, special study guides." (multiple)

"There are tutors that the college has that help me when I am having problems in a class." (learning)

"I used a tutor for English twice. I really learned a lot and I want to get more time to study when it isn't so rushed for me . . ." (learning)

"[If I were an instructor] I would make sure I had good tutors available to help the student with concepts he/she may not understand." (visual)

"I think the disabled student should have a tutor who can help her or him everyday. I think it would be very helpful for the disabled students' needs." (hearing)

"[If I were an instructor] I would assign a good notetaker to the student. I would give him a student with a good understanding of the course to tutor him for exams." (multiple)

"[If I were an instructor] I would suggest a buddy system in class where faster students would help slower handicapped persons with note-taking and homework problems. I would also suggest special notes of lectures and special study material." (mobility)

"I feel that all teachers should have tutors for their classes, for extra assistance in their course." (hearing)

Academic Support Services. Students cited the invaluable formal assistance available to them through established labs and learning centers at the colleges. Others pointed up the need for such student-centered services where they did not yet exist.

"At the college I attend, they have a learning center that helps all students with different courses if you are having problems. Without this center and the instructors who work there, I wouldn't have gotten through my first semester." (mobility)

"Availability of the Reading Lab as a place to study daily and get help when needed (marks have improved since attending Reading Lab)." (mobility)

"Reading lab, math lab." (emotional)

"Learning lab in the library." (mobility)

"There should be a place with book and help from the electrical department where a student can go to research and receive help on electrical problems." (mobility)

"Library: set up a resource center in the library of materials and aids more convenient and preferably in its own room." (visual)

"Letting library be open more at P.M. hours. Let there be a 24 hour study room for anyone who commutes." (mobility)

"The tape books in the library are an excellent service." (learning)

Homebound Program. Several mobility disabled students from one of the cooperating colleges in this study were participating in an alternative learning program known as the "Homebound Program." This special arrangement allows mobility disabled students to attend classes at home using a telephone hookup. Students follow along in textbooks at home and take exams via mail. Student evaluation of this arrangement indicates enthusiasm and gratitude despite some technical deficiencies:

"Without the availability of the _____ Community College Homebound College Program, we homebound students would never have had a new lease on life, intellectually at least." (mobility)

"Thank goodness for the Homebound Program at _____ . It has added a dimension and fulfilled a dream I thought had passed me by a long time ago." (mobility)

"Teacher should always stay near the classroom phone microphone. Explain vocally his blackboard writing. Pace his lecturings more slowly. Explain written tests more detailed. Mail in more printed reading material when visual study aids are used in classroom." (mobility)

"I attend class at home over a telephone hookup. Most classes I don't hear 75-80% of students' comments during class discussion. Some classes I have difficulty hearing teacher." (mobility)

"Not being able to see the blackboard as I'm a homebound student, therefore it's difficult to picture how certain problems are being done." (mobility)

"Bad audio reception from the professor due to electronics malfunction on phone line or classroom equipment." (mobility)

"College is very accommodating in physically transporting materials, exams, etc. to school when needed." (mobility)

"Having our textbooks either mailed or brought in to us from school. Having our course exams mailed to us. Having extra school library reference reading requirements xeroxed and mailed in to us. Someday having access to videotaped all courses subject matter." (mobility)

"Need at least two face-to-face conferences with the student and teacher. Also, provisions to have the student attend one class session at school." (mobility)

Instructor-Centered Comments

The comments in this section focus on several issues related to the instructor's role in the teaching-learning process. Of paramount importance was the need for improved instructor-student communication and interaction. Likewise, students expressed a need for improvement on the part of the instructor in the areas of lecture skills, chalkboard use, audio-visual techniques, and instructional modifications, particularly, alternate assignments, make-up opportunities, and testing procedures.

Interaction and Communication.

"[If I were an instructor] I would communicate with the student as soon as possible to determine what special provisions need be made, ask for advice and ideas and generally welcome him/her to the class." (hearing)

"When you see students wearing hearing aids, [the instructor should] ask them if they need any help or if they want to sit in front of the room so they can hear better. Teachers have been asking me this and I really appreciate the teacher asking." (hearing)

"[If I were an instructor] I would offer any Instructional Accommodations the college has for the student to use at a separate time. I would also offer my assistance in person to the student." (hearing)

"Instructors not to get so impatient when something is asked to be repeated or explained." (multiple)

"Less stress upon class participation in final grades because of speech disability." (speech)

"The instructor should understand that the disabled student can not always reach class on time. Many teachers do not want to be interrupted during a lecture, not even by a handicapped student." (mobility)

"With a two-hour course I [as an instructor] would give my students a break for about ten minutes because of sitting too long and losing the students' concentration span." (mobility)

". . . the agreement that standing or walking be allowed if the sitting is too long." (mobility)

"Attitude that it didn't matter how long it took you to accomplish something (important)." (mobility)

"More personal involvement with people should be added. Try to ask a tape recorder questions! Should be more person-to-person contact which helps student to be more aware of subject and its meaning rather than taped material." (multiple)

Instructional Techniques. Disabled students of all types appear to be having a lot of difficulty in the classroom receiving and keeping pace with instructional information as it is presented. Instructors directly control this phase of the teaching-learning process and the students look to them to correct and to alleviate the problems.

"[If I were an instructor] I'd read what I write on the board." (visual)

"Instructors should write larger on chalkboard; use a colored chalk that shows up well against dark background, i.e., yellow; repeat precisely what is written on chalkboard for best notetaking; when diagrams are drawn on chalkboard, darken the lines of the diagram so it shows up better; provide a seat closer to the chalkboard." (visual)

"When a teacher uses an overhead, it is better to have ceiling lights off . . . it is better to write in the center of board because of glare." (visual)

Some people have vision difficulties connected with diabetes. [As an instructor] I would make sure they could see and if they couldn't I would seat them close to the board, write large, and when I handed out papers, make them in larger print." (multiple)

"As an instructor, I would use a variety of visual aids and devices to help facilitate learning (overhead projectors, handouts, possibly extended use of the chalkboard)." (hearing)

"Audio-visual good because of sound track." (visual)

"Some kind of explanatory version of filmstrips for blind students." (visual)

"Instructor should use overhead projector and blackboard frequently to write new words and answers to questions from homework so student will be sure to get correct answers and spelling." (hearing)

"I am the first deaf student ever to enroll at _____ Community College. I have had a meeting with the staff, media and counseling departments. My main problems were showing of films and doing labs. The media contacted the film distribution companies to see if they can send scripts and the responses mostly were affirmative. Some free of charge and some will cost $3.00. I am still not satisfied with the lab problem I always have especially with the microscope work." (hearing)

"Provide for captioned films and filmstrips for both inside and outside of class." (hearing)

"If I were an instructor, I would slow down in talking to the class . . . write on the board what is being talked about." (learning)

"[If I were an instructor] I would give the student an outline of each chapter." (learning)

"If I were an instructor, I'd face the class when I speak. I'd write all important notes on the board unless I'm aware that the student has a good notetaker. If a male, I'd be sure my beard or mustache isn't overgrown and was thin near mouth lines. If I showed films which were of importance I'd provide the student with the notes from the movie." (hearing)

"Instructor should give descriptive lectures, use more handouts to avoid pressure for accurate class notes; use more student volunteers, more time after class for questions." (visual)

"I suggest that an extra textbook be available at class so the handicapped student can avoid carrying heavy textbooks. Advisor should arrange this." (mobility)

"As an instructor of an epileptic, I would help him by taking time to find out if he has absorbed all the information that had been lectured, written on a chalkboard or explained in a ditto handout. Should I find that he still does not understand any part of this information, I would review it with him and ask one of the other students within his class to work with him during future class hours." (other)

"Depending on the course and the severity of the student's stuttering, I [as an instructor] would be careful not to call upon the student during class for comments or answers." (speech)

"[If I were an instructor] I would make sure the student received diagrams in a mode he/she could use, i.e., raised line; dark, large print drawings. I'd use tactile models in science courses as much as possible." (visual)

"Instructors should be aware of word usage such as 'this, that, here, there, etc.' which have no meaning unless thoroughly explained (blind)." (visual)

"When calling on students with an eye problem, you [the instructor] just can't look at them, you have to call them by name, they can't see you looking at them." (visual)

Instructional Modifications. Disabled students described special accommodations needed to allow them to participate effectively in the teaching-learning process. Alternate assignments, extra time for testing and/or some alternative testing techniques, and the consideration and cooperation of instruc-

tors in providing make-up opportunities for work missed due to illness were listed by students in nearly all the disability types sampled.

"During labs, the instructor should provide alternate experiments or waiving of experiments that no benefit can be derived from due to student's disability." (visual)

"Typing teacher gives student all her instructions for the week on Monday when an interpreter is available. Typing teacher arranged for me to come to school and practice during vacation break." (hearing)

"The instructors let me work on my own." (mobility)

"I have no problems in any classes except for data processing courses. It is difficult for me to meet assignment deadline for output from the computer which my professor made the policy for all students with no exceptions. Also, the computer center give me time limits as it only allows 1/2 hour per day. The terminal room often is so crowded and very uncomfortable. They should try to be aware of me and help to solve the problems--they did not try at all." (hearing)

"Colleges should have a special recreational or physical education for handicapped." (mobility)

". . . many students require special accommodations within physical education courses. The department needs to be more flexible in scheduling alternative activities. It was difficult, too, to get the Health Services to share information about me with the Physical Education instructors. I often felt that the Phys. Ed. Dept. considered me a nuisance." (mobility)

"I was granted a waiver for PE for health reasons." (other)

"The Physical Education requirement was waived." (mobility)

"Teachers cooperate with time extensions for work while I am hospitalized. I must be in hospital at least twice a year. Teachers allow me to do assignments when I return or give assignments to me ahead of time to work on in hospital." (multiple)

"There are times when I feel that I just can't make it to class. I cut classes to go to the doctors, blood tests, etc. Some of my teachers are reducing my grades because of missed classes. What can I do? Health and life have become #1 to me." (multiple)

"[If I were an instructor] I would have aids to make him/her more comfortable in class where the person could concentrate more and better. I would also have personal services so the student could make up for classes missed because of the disability. Some instructors could be much more considerate of the student!" (mobility)

Testing. As indicated earlier on Table 4, time limits on exams proved to be a special problem for students from seven of the eight disability types. The following recommendations concerning testing were offered by students:

"[If I were an instructor] I would use large-type exams and handouts; allow more time for exams." (visual)

"[If I were an instructor] I would give a student as long as they need to do a test." (learning)

"[If I were an instructor] I would give a student who is a slow writer extra time on a test or a true-false format like civil service tests." (mobility)

"[If I were an instructor] I would have multiple choice, oral test, and not take off for spelling before asking the student what it is." (visual)

"Open book test (where needed). Either shorter or no term papers. Can use more homework to accommodate this plus an oral report." (mobility)

"I know answer to questions but I can't read them or spell the words to write the answer. Testing with a tape recorder would be better." (learning)

"All of the disabled individuals should be allotted a tape recorder and a typewriter for the improvement of one's grade leve." (emotional)

"[If I were an instructor] I would read essay-type exams for the student." (visual)

"[If I were an instructor] I would give test questions to research at home so he would be better prepared for exams." (multiple)

"Instructors should be aware of disabled personal needs such as to be informed ahead of time about quizzes, etc. so disabled won't have to sit in classroom while others participate in such activity." (visual)

Institution-Centered Comments

Student comments directed at college-wide services and accommodations fell into the general categories of Counseling, Registration, Orientation, Physical Access, Safety, and Peer Support. While students commented favorably on counseling services, they vigorously recommended improvements in the areas of physical access and personal safety.

Counseling.

"I just want to say the handicapped center at _____ Community College

has the best counselors. They are concerned and offer the best help that they possibly can." (hearing)

"Other schools should have a building such as _____ at _____ Community College. All the hlep I need, they provide for me and make known to me other devices if I need them. What was most helpful to me was my counselor. I got priority considerations with classes and teachers were recommended." (hearing)

"Miss _____, as handicapped counselor, has proved invaluable in all areas." (visual)

"My counselor, Mr. _____, has been helpful to me in more ways than I could possibly put down in this whole booklet." (mobility)

"_____ Community College and its staff have a very good handle on disabilities of all kinds. The counseling center has been more than helpful in helping me with anything I might need. _____ is set up very well for people in wheelchairs. Special thanks to counselors _____ and _____ for making my days at _____ very relaxing." (mobility)

"The people in the counseling center have been helpful to me in just being there to t[illegible] when I needed to." (multiple)

"The counselors give moral support." (visual)

"Being able to talk to Ms. _____ (counseling) about any difficulties or problems." (multiple)

More specific counseling services cited included the following:

"My counselor gets books for me in the bookstore as it is hard for me to get in." (mobility)

"Counselor helps me choose courses and gives me tests." (learning)

"Counseling Center provides notetaking paper. They help me with the library." (hearing)

"Relaxation exercises are very helpful." (multiple)

"Counselors make it possible for me to register without standing in line for hours." (mobility)

Students offered the following suggestions:

"Counseling materials should be available in Braille." (visual)

"Counseling should be aware of handicap services at other campuses and at local high schools. Should be closer liaison." (visual)

Services provided by the Office of Vocational Rehabilitation were also mentioned:

"The Office of Vocational Rehabilitation has done an outstanding job for availability for consultation and help. This program has allowed

me to continue my education in the field I desire. I wish that all disabled people could learn about this program and be able to take advantage of it." (mobility)

"Vocational Rehabilitation should be ready for the handicapped student, sometimes it was a waste of time. It really needs good service for the handicapped." (learning)

"The counseling staff has shown great interest and concern in any matter I approached them with. My voc rehab counselor also has been of great help and enthusiasm." (multiple)

Physical Access. A large percentage of student comments concerned physical access. Students at the 19 campuses expressed both satisfaction and dissatisfaction with physical access accommodations.

"Not nearly enough parking spaces for disabled students and parking rules not strictly enforced." (mobility)

"The policy at this college is that you have to get a doctor's statement every semester to park there. If you are permanently disabled, I don't feel that your doctor should have to make out a permit every semester." (mobility)

"Special parking, use of elevator, raised desks, assistance in library and cafeteria have been very helpful." (mobility)

"Security officers have helped me through the snow many times." (mobility)

"The elevators make life easier, buses that pull right in the front are nice also." (mobility)

"The affirmative action office has been very helpful in getting me keys to the elevator." (multiple)

"Elevator not available in library." (mobility)

"The major reason for my being able to dorm here is an accessible bathroom (wide doors on toilet stalls, wide door to get in/out, large shower room). Also, most of the buildings have elevators and need no ramps to enter them." (mobility)

"The special doors (slow opening for wheelchairs) are a great help. Many times the pushing or pulling motion on doors aggrevates my condition." (mobility)

"Electric-opening doors should be available in every building." (mobility)

"I feel that this college lacks special accommodations for a person in a wheelchair. Most buildings are inaccessible." (mobility)

"In auditorium classes where there are stairs, the seats in the aisles should have higher backs so they can be used as a railing when going up or down the stairs. More elevators, at least one in each building. Lower curbs. A helping hand or cleaner walks during snow season. Also, I would like to suggest a special busing for handicapped." (mobility)

"The college needs more ramps and more elevators. The college should receive more funding just for this problem." (mobility)

"The only thing they have here at _____ is one elevator in the library, one ramp behind the theater and very helpful friends--believe me, that is it. I hope what I have said will help us and other colleges." (mobility)

"I need a handsplint to write with, an elevator to get upstairs to my class, and a desk that I can get my wheelchair up to." (mobility)

"My main need is for a raised desk." (mobility)

"Medicab to get to and from school (it is a specially equipped van)." (mobility)

"I need a listing of the students in my geographic area, their addresses, phone numbers, and class schedules." (visual)

It is interesting to note that from all the student comments, the mobility disabled students emerge as the most independent with regard to special accommodations, but are the most critical when barriers exist which limit access and independent functioning on campus:

"My injury has nothing to do with my learning capability. With my personal injury, I can be treated the same as any other student. As long as the buildings are wheelchair accessible, I'm fine." (mobility)

"The architectural accommodations that make it possible for me to attend school are, I feel, the only ones necessary to anyone in a wheelchair." (mobility)

Scheduling of classes for disabled students proved to be related to physical access problems. Students asked that "All classes be in the same building" (mobility) and that there be "more time between classes" (multiple). Additional aspects of scheduling were also highlighted:

"Should have someone or some way to get in touch with students if class is cancelled ahead of time. Picture a blind person sitting in classroom waiting for a class that is never going to be . . . " (visual)

"Colleges should provide more evening courses for those that work during the day. Since _____ Community College offers no Occupational Therapy evening courses, I've been forced to change my major to Business: e.g.,

Data Processing. I can't commute to other colleges that offer D.P. evening courses since very few do. This is a big problem. Anything you can do along this line would be appreciated." (visual)

"If you think you can't handle six classes in one semester, try reducing down to five or four depending on credit hour and ask advisor if you can go through program and stay 5-6 semesters." (hearing)

Registration and Orientation. Disabled students need special help with registration and orientation, and depend on the Counseling Center, student advisors, and outside agencies for help. Suggestions about registration were:

"Special registration with help from the Counseling Center is needed." (multiple)

"Assistance in registrations would be helpful." (visual)

"A problem for handicapped students at this college is registration for classes each semester is done in the gym. It is very difficult for the student to go to the gym and in some cases the student advisor will register for them." (mobility)

"I would suggest that handicapped students be registered by mail and also pay by mail after conversation with advisor." (mobility)

Comments about orientation include:

"The only big problem is finding the classrooms, there should be someone there for at least the first week." (visual)

"I received mobility training of the college facilities from the Commission for the Blind and Visually Handicapped." (visual)

"There should be Braille labels on doors and tactile map of campus available." (visual)

"Instructors and student advisors should take more interest in students with these kinds of disabilities. Students (Freshmen) should be advised of problems that they may encounter such as health insurance, financial aid, housing, etc." (emotional)

Safety. Safety features proved to be a concern for many disabled students. Recommendations for improvement included:

"Mark large glass panes with a sticker of some sort like the fire doors." (visual)

"There should be Braille labels on doors and tactile map of campus available." (visual)

"Elevators should be checked and made safe for the disabled. New elevators installed should be state inspected upon completion immediately." (multiple)

"I would make arrangements to evacuate me (wheelchair-bound) in case of fire, bomb threat, etc. I have been trying to have this done for years, but to no avail. Since the elevator cannot be used during a fire, I cannot get off the floor that all my classes are on. This is the only matter on which _____ has not acted on quickly." (mobility)

"When staying in dorm they should have other student in your suite aware of your problem so they can help you to get out of the building for fire drills." (hearing)

"Campus Security is extremely helpful with problems affecting my guide-dog (strays, harassment, etc.)." (visual)

Health problems of some disabled students on the campus were directly linked to safety and personal adjustment, particularly for diabetics:

"Counseling and infirmary have been of great assistance in providing information and support." (Other: diabetic)

"During diabetic attacks, teachers and security officers are understanding and helpful. Health Services is helpful with attacks as my diabetes is not totally regulated." (Other: diabetic)

"Be aware of insulin dependent diabetics. There is a very thin line between poor and good control. At the end of a long day, stress or other factors can interfere with good control which in turn produces lethargy, insulin shock, and generally the inability to cope. Diabetics are not obviously disabled. All teachers should be made aware of insulin-dependent diabetics in their class. Sometimes it is necessary to leave the classroom to take care of self should insulin shock be coming on." (Other: diabetic)

"Diabetics need some privacy for urine testing and administering shots." (Other: diabetic)

"Health Services of great help in administering allergy shots and eye drops per doctor's authorization." (Multiple: visual/epileptic)

"Putting orange juice machines in all academic buildings is needed." (Other: diabetic)

Peer Support. A final concern which surfaced in a number of disabled student responses was the need for peer support on campus. Activities mentioned included an awareness club being formed at one campus, a handicapped students' club at another campus, and peer orientation on campus for mobility disabled

sponsored by the Counseling Center at a third campus. Additional visibility was gained on one campus through the student newspaper:

> "The student newspaper has printed a series of my articles teaching basic signs. Their openness and warmth has provided many students with an interest in the language and in deaf people." (hearing)

Several older disabled students experienced a double dilemma:

> "It is emotionally upsetting to be a full-time student when you are a kind of misfit. Nondisabled students don't see us as peers because we are disabled. Young students don't see us as peers because we are older (35 or older age bracket). Teachers don't see us as peers because we are 'students.'" (mobility)

> "We have formed an adult returning student group and many people who have joined the group are disabled. This group has been very active in trying to help the disabled to reenter school. We have worked to make registration, parking, and the general return to school life easier not only for the disabled, but also for all adults returning to school." (mobility)

Disabled students shared glimpses of their personal adjustment to the college experience with the following comments. These positive experiences serve to underscore the effect of the human contact component found to be so vital to disabled students:

> "I have a hearing problem. I made it all through high school being an average student. At college, I found I understand myself better, am less embarrassed about my problem, and feel free to let others know about it. Ask for help. Now I'm on the honor role." (hearing)

> "Mr. _____ came to my high school when I was a senior and told much about _____ Community College and what they can do for disability study. I was not thinking about college, but now I am in college. I enjoy it and it is the best thing I did!" (hearing)

> "Thank goodness for the Homebound Program at _____. It has added a dimension and fulfilled a dream I thought had passed me by a long time ago." (mobility)

Final Note

The students generally expressed approval and gratitude for being given the opportunity to share their concerns: "This survey is a very good idea," and "Thank you for allowing me to participate in this survey since I have wanted to offer my comments for a long time."